Appendix A

Notice of Preparation, Scoping Paper, NOP Responses

County of Santa Barbara
Planning and Development
Glenn S. Russell, Ph.D., Director
Dianne Black, Assistant Director

NOTICE OF PREPARATION

TO: State Clearinghouse
Governor's Office of Planning and Research
P.O. Box 3044
Sacramento, CA 95812-3044

FROM: Dana Eady, Senior Planner
County of Santa Barbara
Planning and Development
624 W. Foster Road, Suite C
Santa Maria, Ca. 93455
Phone: (805) 934-6250

SUBJECT: Notice of Preparation of a Draft Subsequent Environmental Impact Report

PROJECT NAME: The Neighborhoods of Willow Creek & Hidden Canyon (Key Site 21)

PROJECT LOCATION: The project site is located on the south side of Highway 1 between Solomon Road and Black Road in the Orcutt Community Plan Area. The site is identified as Assessor's Parcel Numbers 113-250-015, -016, -017, Santa Barbara County

PROJECT CASE No.: 16SPP-00000-00001, 17GPA-00000-00005, 16TRM-00000-00003, 16TRM-00000-00004, 16DVP-00000-00008, 17DVP-00000-00011, 16CUP-00000-00033, 17CUP-00000-00030, 17RDN-00000-00002

PROJECT APPLICANT: Anthony E. Wells, Orcutt Rancho, LLC c/o HMW Group, Ltd, 124 W. Main Street Suite G, Santa Maria, CA 93455

PROJECT AGENT: Frances Romero, FORMA, 237 Town Center West #272, Santa Maria, CA 93458

The County of Santa Barbara will be the Lead Agency and will prepare a Subsequent Environmental Impact Report (SEIR) for the project identified above. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the SEIR prepared by our agency when considering your permit or other approval for the project. The project description, location and the potential environmental effects are contained in the Scoping Paper (if attached) or are available on our website at www.sbcountyplanning.org.

A Scoping Meeting has been scheduled to occur on **April 18, 2018 at 5:30p.m. at Planning and Development, 624 W. Foster Rd., Suite C, Santa Maria, CA 93455.** The Scoping Meeting discussion will be limited to environmental concerns, the focus of the environmental document, potential mitigation measures and potential alternatives to the project. The Scoping Paper provides a list of potential project environmental impacts identified by P&D staff and will be used as a starting point for discussion during the meeting. Other environmental concerns may be

raised by the public at this meeting. P&D staff encourages your participation in this process; please pass on this information to others you feel would be interested in attending this meeting. Copies of the Scoping Paper will be available at the meeting as well.

Note: The County of Santa Barbara CEQA Guidelines provide that if the applicant requests to review the Administrative Draft EIR (ADEIR), the document must be made available to members of the public. The Scoping Meeting provides an opportunity for public members to notify staff so they may be contacted should the applicant request to review the ADEIR.

Due to the time limits mandated by State law, your response must be received at the earliest possible date but not later than 30 days after receipt of this notice (by 5:00 p.m. on Wednesday, April 25, 2018).

Please send your response to Dana Eady, Senior Planner, at the address shown above. We will need the name of a contact person in your agency.

Date: March 27, 2018 Planner: Dana Eady

Division: Development Review

Telephone: (805) 934-6266

cc: Clerk of the Board (please post for 30 days)

Attachments:

Attachment 1- Vicinity Map
Attachment 2- Scoping Paper

ATTACHMENT 1

Vicinity Map

ATTACHMENT 2

Scoping Paper

COUNTY OF SANTA BARBARA

Planning and Development

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Attachment 2
Subsequent Environmental Impact Report Scoping Paper

The Neighborhoods of Willow Creek & Hidden Canyon (Key Site 21)

Case Nos.: 17GPA-00000-00005, 16SPP-00000-00001
16TRM-00000-00003, 16TRM-00000-00004
16DVP-00000-00008, 17DVP-00000-00011
16CUP-00000-00033, 17CUP-00000-00030
17RDN-00000-00002

March 27, 2018

Owner/Applicant
Anthony E. Wells
Orcutt Rancho, LLC
c/o HMW Group, Ltd
124 W. Main Street Suite G
Santa Maria, CA 93458

Agent
Frances Romero
FORMA
237 Town Center West #272
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For More Information Contact: Dana Eady, Senior Planner, Development Review Division, (805)934-6266

1.0 INTRODUCTION

Pursuant to State CEQA Guidelines Sections 15063 and 15162(3) as well as Article V, Section E, 4 of the County of Santa Barbara Guidelines for the Implementation of the California Environmental Quality Act of 1970, as Amended (Last Revised 11/22/05) ("County CEQA Guidelines"), the County of Santa Barbara Planning & Development Department [i.e. the "Lead Agency"] has determined that the proposed request to develop 146 residential units at Key Site 21 will require the preparation of a Subsequent Project Environmental Impact Report (SEIR).

2.0 PROJECT DESCRIPTION/REQUEST

The proposed project is a request by Frances Romero of Forma, agent for Orcutt Ranch, LLC, owner, for approval of the Neighborhoods of Willow Creek and Hidden Canyon project located on a portion of Key Site 21 in the Orcutt Community Plan area. The proposed project includes the following:

1. **Specific Plan**: Per the provisions of the Orcutt Community Plan Development Standard DevStd KS21-1, a Specific Plan (Case No. 16SPP-00000-00001) that provides for the design and regulatory framework to provide for orderly development including housing, a public trail, open space, and biological protection measures. The Specific Plan includes the following:

    - Provide a unit count of 146 single family homes;
    - Provide a mix of lot sizes to be responsive to market trends;
    - Design Guidelines to provide standards and guidance for architectural design, development, and landscaping;
    - Provide lot standards per the provisions of the Specific Plan and PRD Zone District;
    - Incorporate the current Santa Barbara County Inclusionary Housing Ordinance specifications to pay in-lieu fees for the entire Affordable Housing project requirement;
    - Provide public trails; and
    - Provide HWY 1 frontage improvements to include two (2) paved twelve-foot travel lanes, deceleration/turn lanes located at the new entrances to Willow Creek and Hidden Canyon, and two (2) paved 8-foot shoulders that would also serve as Class 3 bike lanes.

2. **Vesting Tentative Tract Maps:** Two Vesting Tentative Tract Maps to subdivide two lots of 106.73 gross acres and 70 gross acres as follows:

16TRM-00000-00003/TM 14,822	**16TRM-00000-00004 / TM 14,823**
Hidden Canyon – 106.73-acres	Willow Creek – 70-acres
APN 113-250-016	APNs 113-250-017
56 single family lots	90 single family lots
1 open space/private roadway lot	1 open space/private roadway lot

The residential lots in Hidden Canyon would range in size from 10,351 sq. ft. to 40,091 sq. ft. The residential lots in Willow Creek would range in size from 8,000 sq. ft. to 27,706 sq. ft.

3. **Development Plans:** Two Final Development Plans (Case Nos. 16DVP-00000-00008, 17DVP-00000-00011) for the development of 146 single family residences and associated infrastructure including landscaping, fencing, lighting, access ways, open space areas and onsite detention basins within the proposed Willow Creek and Hidden Canyon Tracts. The Willow Creek neighborhood would include residential areas sited on 37.2 acres to provide 90 single family lots with an average residential lot size of 11,400 sq. ft., a maximum building height of 35 feet, and a single story restriction on lots immediately adjacent to the Golf Course fairway. Secondary access would be gated at the Golf Course parking lot to provide emergency vehicular access (EVA) ingress/egress access through the parking lot if needed, as well as egress for residents. In order to address concerns with errant golf ball flight conflicts from the adjacent Rancho Maria Golf Course (RMGC) (Hole 15) and the proposed primary access entry to the Willow Creek Neighborhood from Highway 1, a golf course safety net would be constructed along the Willow Creek Neighborhood property boundary at the edge of the proposed 60-foot wide access corridor. The safety net would be black in color and would be constructed on poles at a minimum height of 8-feet at the back of the Hole 15 tee box to a maximum height of 60-feet at the green (approximately 550-feet in total length). Landscaping is proposed to be installed along the entire length of the safety net to screen and soften its overall aesthetic appearance. Screening vegetation including evergreen trees and shrubs are proposed within an approximately 3-acre buffer area between Holes 13 and 14 and the nearest Willow Creek neighborhood single family dwellings to maximize compatibility with existing RMGC golf course activity.

   The Hidden Canyon neighborhood features residential areas sited on 39.3 acres to provide 56 single family lots with an average residential lot size of 18,000 sq. ft., a maximum building height of 35 feet, and a single-story restriction on lots immediately adjacent to the Golf Course fairway. The neighborhood is located on the east side of Key Site 21. The Hidden Canyon Tract improvements include a public hiking trail connection, hiking trail, and trailhead staging area with parking for up to six (6) vehicles.

   Architecture: Design Guidelines in the Specific Plan would provide standards and guidance for architectural development. Houses would be built in various architectural styles including: Traditional California Bungalow, Mediterranean, California Ranch, and Modern. Architectural elements including porches, balconies, and decks are encouraged to provide visual interest and neighborhood attractiveness. Garages are encouraged to be set back from the fronts of homes to enhance streetscape visual interest, and provide a more pedestrian oriented environment. Traditional elements, consistent with the proposed Neighborhoods architectural styles, would be incorporated to create a pleasant pedestrian-oriented neighborhood environment. These elements include front porches, recessed front garages, or garages on the side of homes, generous street landscaping, and access to a private DG pedestrian pathway system. Streetlights would provide a safe level of illumination for pedestrians and breaks in view fencing would be provided at cul-de-sacs to facilitate pedestrian movement. Subdivisions would provide pedestrian walkways through the

Neighborhoods Specific Plan area that connect with the trail system. Where possible, cul-de-sac streets and adjacent lots in new residential subdivisions would be designed to provide pedestrian links between the end of the cul-de-sac and adjacent cul-de-sac, or between the cul-de-sac and a larger pedestrian pathway system.

Landscaping: The Neighborhoods Specific Plan prescribes specific planting guidelines for the community as a whole, adjacent to streets, within parks, within the neighborhoods, and adjacent to the golf course in HOA owned and maintained open space areas providing a buffer to the golf course. The planting guidelines detail specific plants to be used in order to promote drought tolerance, to shade streets and to blend with the existing native environment, and to prohibit the use of invasive species.

Lighting: Project lighting would be installed in accordance with the Specific Plan. The intent is to provide sufficient lighting for all Neighborhoods Specific Plan areas without impacting the natural open space areas or the dark sky views, and to be dark sky compliant. Street lighting would provide illumination for motorists and pedestrians, but would not intrude into residences or open space areas. Lighting at the neighborhood entries would be sufficient to create a visual gateway and could include lighting of entry monuments. Neighborhood entry lighting would be limited to the immediate vicinity of the entry and associated directional Neighborhoods Specific Plan signage. Lighting would be shielded so that it does not intrude into any adjacent open-space areas and motion-sensor lighting may be used as appropriate. No trail lighting is proposed.

Fencing: Project fencing would be installed in accordance with the Specific Plan. To create adequate privacy in the home sites, rear and side yard fences would be constructed of solid wood fence panels, vinyl, or composite (such as Trex) fencing. The fence panels would be painted or stained in colors that match or harmonize with the architectural color palette of the residences. Rear and side yard fences on residential home site adjoining the Rancho Maria Golf Course or open space areas may be constructed of wrought iron, tubular steel, wood rail or similar open fencing.

Lot Standards: As described in the Specific Plan, the minimum setbacks for single family residential units in the Willow Creek and Hidden Canyon Tracts are 15' front yard with 20' minimum to the garage door where it faces the street, 10' rear and 5' side yard setbacks. The minimum setbacks within these two neighborhoods are intended to provide maximum flexibility for each lot to create a varied streetscape.

Access: Access to the project site would be provided from three new entry drives off Highway 1. The Willow Creek Tract (TM 14,823) would include a new private road constructed approximately 1,200 feet west of the main entrance to the Rancho Maria Golf Course (Golf Course). This road would serve as primary access to the 90 home sites at the Willow Creek neighborhood. A private secondary access road from Willow Creek through the Rancho Maria Golf Course and out to Hwy 1 would be provided with gated egress. Exiting through the gate would be unrestricted and automatic. A Knox Box would also be installed on the gate for full access by emergency personnel. The Hidden Canyon Tract (TM 14,822) would include two new private roads constructed approximately 1,100 and 1,900 feet

east of the existing Golf Course entry. These roads would provide primary and secondary access to the 56 home sites within the Hidden Canyon Tract.

The primary private access roads would be 38-feet wide, with parking allowed on both sides of the Street. The secondary private roads would be 24-feet wide, with no parking allowed. The on-site circulation is private and designed to accommodate moving vans/trucks, emergency vehicle access and trash pick-up and to provide safe access and adequate storage for motorists to and from the Neighborhoods Specific Plan area. The developer would comply with the County's off-street parking requirements**.** Frontage improvements to Hwy 1 would include two (2) paved twelve-foot travel lanes, deceleration/turn lanes located at the new entrances to Willow Creek and Hidden Canyon, and two (2) paved 8-foot shoulders that would also serve as Class 3 bike lanes.

Parking Standards: Single family residences would have a minimum of two (2) off- street parking spaces. Two additional vehicles could easily be accommodated in the driveways based on garage setbacks. The trailhead area provides for a total of six (6) parking spaces.

Sustainable Design Features: The proposed Neighborhoods Specific Plan incorporates various design features that would reduce air pollutant emissions. These include: 1) providing homes with appropriate wiring for future access to solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent; and, 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

Grading and Drainage: Grading amounts for the tracts including roadways and building pads for the proposed homes is summarized below. The grading was designed to result in a balance of cut and fill between the two neighborhoods. No fill material would be placed within the undeveloped natural open space areas.

TM 14,823 Willow Creek (West Side)	**TM 14,822 Hidden Canyon (East Side)**
Cut: 197,110 c.y.	Cut: 335,516 c.y.
Fill: 224,141 c.y.	Fill: 251,149 c.y.
Net Fill: 27,031 c.y.	Net Cut: 84,367 c.y.

The Neighborhoods Specific Plan would be subject to a Storm Water Pollution Prevention Plan which requires implementation of erosion control measures and minimizes water quality degradation through storm water monitoring. In both neighborhoods, slopes would be contoured to the extent possible to provide smooth transitions between the graded areas and the adjacent natural land contours. Retaining walls outside of the building footprints would not exceed 4 feet in height as a result of the neighborhood configurations.

Runoff from the proposed lots and roadways would be directed to bio-retention facilities where feasible with any possible overflow captured within de-silting/retention basins. Drainage from the Willow Creek Tract would be directed to two (2) on-site retardation basins

and five (5) bio-retention basins totaling 1.62acres to contain a 100-year storm event, while utilizing Low Impact Design (LID) features including diversion of drainage to landscaped areas to promote infiltration. Any excess runoff will follow the historical drainage course that runs south-to-north along the center of the Neighborhoods Specific Plan area. Drainage from the Hidden Canyon Tract would be directed to one (1) on-site detention basin totaling 1.90 acres to contain a 100-year storm event, and to provide an overland escape to the natural drainage course near the northeast corner of the Neighborhoods Specific Plan area site utilizing Low Impact Design (LID) features including diversion of drainage to landscaped areas to promote infiltration. Source Control site design includes roof drains for single family lots to be directed through vegetated yard swales to promote infiltration as a first measure of treatment. Treatment control measures include low flow swales within developed catchment areas and a detention basin to promote infiltration of the runoff from the 1.2" storm event.

Open Space Areas: The proposed project includes 96.7 acres of private undisturbed open space in the two neighborhoods (12.5 acres of natural open space are located on APN 113-250-015 which also includes the Golf Course entry but is not a part of either of the tentative tract maps). These undisturbed open spaces make up approximately 51% of the overall Neighborhoods Specific Plan area. There are an additional 29.8 acres of private managed open space that includes landscape, trailhead, trails, and fuel modification areas.

Public Trail: The Hidden Canyon Tract would include a public hiking trail to provide access from the residential development (Hidden Canyon) and HWY 1 to neighboring foothills as well as the Orcutt regional trail system, as required by OCP Key Site 21 Design Standard KS 21-5.

Fire Access: The County Fire Department has identified acceptable road locations and widths to provide for full private secondary access that includes a driveway and road at the eastern edge of the Hidden Canyon Tract providing a right turn egress onto HWY 1. A raised "pork chop" median island to discourage left turns onto HWY 1 but allow access for emergency personnel would be installed at the driveway along with signage for a right turn only. The primary private entrance road to this neighborhood is located approximately 800' to the west of the secondary egress. Willow Creek's secondary egress would be through the existing EVA easement through the Golf Course parking lot and through the existing Golf Course entrance that is part of APN 113-250-015. The secondary egress would be accessed through a private road and would be egress gated for residents; it would be secured by a Knox Box for full access to emergency personnel only.

Affordable Housing: The applicant would comply with the County's Inclusionary Housing Ordinance by paying in-lieu fees for affordable housing.

Water & Sewer Services: Water would be provided through a newly formed mutual water company. A new Community Water System would be designed that would include two new water wells. Waterlines would be installed from the water system to each of the Tracts. A hydro-pneumatic tank system and a storage tank facility are also proposed to be installed as a

part of the water system. The net consumptive use of the Neighborhoods Specific Plan is estimated to be 106.02 AFY.

Sewer service for The Neighborhoods Specific Plan would be provided by the Laguna County Sanitation District. The Neighborhoods Specific Plan wastewater demand is estimated to be 237,000 gallons per day. The proposed onsite collection system is comprised of a network of gravity sewer lines located in the private roads serving the individual units that will meet at HWY 1 and tie into a recorded easement to the 24" sewer main to the North.

Agricultural Buffer: A 200-foot wide agricultural buffer from development would be provided along the eastern and western edge of the project site from existing cultivated agricultural fields located on adjacent parcels to the east and west. A 100-foot buffer from development would be provided along the eastern edge of the project site from existing grazing lands. No buildings or structures would be permitted within the agricultural buffer area. Only access roadways, private backyards, public trails, and open space areas would be located within the agricultural buffer area.

4. **Minor Conditional Use Permit:** A Minor Conditional Use Permit is proposed (Case No. 17CUP-00000-00030) for the development of a new Community Water System to serve the Hidden Canyon and Willow Creek Tracts. The water system would include two new water wells, a hydro-pneumatic tank system and a storage tank. Waterlines would be installed from the water system to each of the Tracts.

5. **Minor Conditional Use Permit:** A Minor Conditional Use Permit (Case No. 16CUP-00000-00033) to permit two entrance monument signs (one for Willow Creek and one for Hidden Canyon) each with a maximum size of 20 sq. ft.

6. **Road Naming:** A road naming application (Case No. 17RDN-00000-00002) to name the proposed private roads within the proposed Willow Creek and Hidden Canyon Tracts in compliance with Chapter 35.76 of the County Land Use and Development Code.

7. **General Plan Amendment:** The applicant is requesting a General Plan Amendment (Case No. 17GPA-00000-00005) to relocate the proposed trail staging area from the location shown in Orcutt Community Plan Figure KS 21-1 (adjacent to Highway 1) to the project site.

3.0 PROJECT LOCATION

The project site is comprised of three undeveloped parcels located on a portion of Key Site 21 in the Orcutt Community Plan area. Key Site 21 is located on the south side of Highway 1 between Solomon Road and Black Road, approximately ½ mile west of the Highway 1/Solomon Road intersection in the Third Supervisorial District. Rural agricultural lands surround the site to the east, west and south. Existing adjacent development consists of the Rancho Maria Golf Course.

Figure 1
Key Site 21 Location

Table 1: Project Site Information	
Comprehensive Plan Designation	Planned Development – 150/Visitor Serving Commercial
Ordinance, Zone	Land Use Development Code, PRD
Site Size	APN 113-250-017: 70-acres; APN 113-250-016: 106.72-acres APN 113-250-015: 12.48-acres
Present Use & Development	Vacant
Surrounding Uses/Zone(s)	North: Cultivated Agriculture / RR-20 (Residential Ranchette) South: Vacant, Grazing / RMZ-320 (Resource Management) East: Cultivated Agriculture, Grazing, Vacant / AG-II-320 West: Cultivated Agriculture, grazing, vacant / AG-II-320
Access	Proposed private driveways accessed from Highway 1
Public Services	Water Supply: Private Mutual Water Company Sewage: Laguna County Sanitation District Fire: Santa Barbara County Station #22 Sheriff: Santa Barbara County

4.0 ENVIRONMENTAL SETTING

The project site is comprised of three undeveloped parcels (APNs 113-250-015, -016, -017) located on a portion of Key Site 21 in the Orcutt Community Plan area. Key Site 21 is located on the south side of Highway 1 between Solomon Road and Black Road, approximately ½ mile west of the Highway 1/Solomon Road intersection in the Third Supervisorial District. Rural agricultural lands surround the site to the east, west and south.

Key Site 21 totals approximately 340.7-acres. The Rancho Maria Golf Club, a public 18-hole golf course constructed in the late 1960's is located on the central pinwheel-shaped parcel occupying 130-acres of Key Site 21. The three parcels proposed for residential development (190-acres) are undeveloped and lie at the outer edges of the golf course and in between the fairways.

The project site is located at the base of the northern flanks of the east-west trending Casmalia Hills. The topography consists of gentle slopes that reach 420 feet in elevation along the southern perimeter of the site dropping to 220 feet in elevation at the northwest corner of the property. Three unnamed drainages flow in a northwesterly direction and are tributaries to Orcutt Creek, located to the north. Other small ravines and gullies bisect the site in places, eventually draining toward Orcutt Creek.

A variety of native and non-native communities are found within and in the immediate area of the project site, including arroyo willow thickets, coast live oak woodland, California sagebrush scrub, coyote brush scrub, purple needlegrass grassland, perennial rye grass grassland, cattail marshes, California annual grassland and eucalyptus groves. California annual grasslands cover the majority of the project site. Along with natural vegetation, habitat features such as seasonal ponds and drainages contain key ecosystem components that increase habitat value and complexity for a wide variety of wildlife and plant species. Among these occurring on the project site are the federally listed endangered California Tiger Salamander (CTS) and California Red-Legged frog (CRLF) and many other special-status plant and wildlife species. A known CTS breeding pond (SAMA-21) is located on APN 113-250-014. This parcel is developed with the Rancho Maria Gold Club, adjacent to the project site.

5.0 PREVIOUS ENVIRONMENTAL REVIEW

5.1 Orcutt Community Plan EIR

The Orcutt Community Plan EIR (95-EIR-01) identified Class I unavoidable significant impacts with full buildout under the Community Plan in the areas of: Land Use, Biology, Agriculture, Geology, Flooding & Drainage, Water Supply/Groundwater Resources, Archaeology, Historical Resources, Traffic & Circulation, Noise, Air Quality, Risk of Upset/Polluting Sources, Wastewater, Fire Protection, Police Protection, Solid Waste, Library Services, Visual/Aesthetics, Parks Recreation & Trails, and Schools. Mitigation measures identified to minimize impacts were incorporated as Policies and Development Standards in the Board of Supervisors-adopted Orcutt Community Plan.

Key Site 21 was not among those given special attention in the OCP EIR as a "mini-EIR" but rather was briefly analyzed, along with the other 45 designated Key Sites in the OCP planning area. A more thorough analysis is required for specific development proposals. The OCP EIR considered a project with a maximum buildout of 150 residential units and only preliminarily investigated the environmental impacts to Biological Resources, Visual Resources and Open Space. The impacts to these issue areas were considered to be significant and unavoidable (Class I).

6.0 ENVIRONMENTAL REVIEW

Below is a summary of staff's preliminary identification of potentially new or substantially greater significant environmental impacts from those adequately analyzed in the OCP EIR. The prospective consultants must propose a Scope of Work for a Project SEIR that, at a minimum, includes these impact areas:

AESTHETICS/VISUAL RESOURCES

Impact Discussion:

The project site is located adjacent to Highway 1 in the foreground of the Casmalia Hills, and contributes significantly to the rural character of west Orcutt. Highway 1 has been designated as eligible for designation as a "Scenic Highway" along its entire length through Santa Barbara County. The site serves as a visual gateway to west Orcutt for westbound travelers on Highway 1. Views to the southeast across the site include expanses of rolling grassland and agricultural cultivation. The Rancho Maria Golf Club, a public 18-hole golf course, is located on a pinwheel shaped parcel adjacent to the project site occupying approximately 130-acres of Key Site 21. The project parcels are undeveloped.

The County's Visual Aesthetics Impact Guidelines classify coastal and mountainous areas, the urban fringe, and travel corridors as "especially important" visual resources. A project may have the potential to create a significantly adverse aesthetic impact if it would impact important visual resources, obstruct public views, remove significant amounts of vegetation, substantially alter the natural character of the landscape, or involve extensive grading visible from public areas. The proposed development of 146 residential units on the site would create *potentially significant* impacts to the visual character of the site as a result of the change from open space and rural landscape to housing. The construction of 146 residential units would also create *potentially significant* impacts to the scenic view corridor on the southern side of the Highway 1 corridor between Black Road and Solomon Road by interrupting the existing views of rolling hills with housing.

In order to address concerns with errant golf ball flight conflicts from the adjacent Rancho Maria Golf Course (RMGC) and the proposed primary access entry to the Willow Creek Neighborhood from Highway 1, a golf course safety net would be constructed along the Willow Creek Neighborhood property boundary at the edge of the proposed 60-foot wide access corridor. The safety net would be black in color and would be constructed on poles at a minimum height of 8-feet at the back of the Hole 15 tee box to a maximum height of 60-feet at the green (approximately 550-feet in total length). Landscaping is proposed to be installed along the entire

length of the safety net to screen and soften its overall aesthetic appearance. Screening vegetation including evergreen trees and shrubs are proposed within an approximately 3-acre buffer area between Holes 13 and 14 and the nearest Willow Creek neighborhood single family dwellings to maximize compatibility with existing RMGC golf course activity. The SEIR will need to include an analysis of potential impacts to aesthetic and visual resources as a result of the proposed safety net.

Lighting associated with the project could create glare off-site, light spillage and/or increased night sky light pollution, thereby resulting in potentially significant impacts to the nighttime character of the surrounding area. With respect to light and glare, the site currently has no lighted nighttime activity, or structures that would produce glare.

Mitigation measures KS21-VIS-1 and KS21-VIS-2 included in the Orcutt Community Plan Environmental Impact Report (95-EIR-01) were identified to reduce project specific impacts resulting from the development of 150 residential units on Key Site 21 to less than significant. However, according to the OCP EIR, these measures would not be sufficient to offset the overall visual impacts of the change in character of a major gateway to the community from semi-rural to urban and these impacts would remain significant and unavoidable (Class I) impacts.

Scope of SEIR:

- Identify the existing visual resources of the project site and its surroundings, including the site's physical attributes, its relative visibility from area roads, trails, and residences, and assess potential impacts to these resources from development of the proposed project including future residences and accessory structures.
- Identify the existing character of public views across, into, and out of the site and assess potential impacts to these views from residential development on the proposed lots.
- Peer review the visual simulations included in *The Neighborhoods Specific Plan Environmental Documentation* (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018) to aid in the analysis of visual impacts of the proposed project, including potential future residential development.
- Identify the night time setting and character of the site and surrounding area and assess the potential impacts to this nighttime character from proposed development.
- Identify any impacts to the existing character of the project site and the integrity of the site's visual character from proposed development, including the proposed golf course safety net.
- Analyze cumulative impact levels and the contribution of the proposed project to these cumulative impacts.
- Identify mitigation measures as necessary and residual impacts.

Sources of Information:

The Neighborhoods Specific Plan Environmental Documentation (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

AGRICULTURAL RESOURCES

Impact Discussion:

The project site is zoned Planned Residential Development (PRD) and the land use designation is Planned Development (maximum of 150-units). The project site is located within an Existing Developed Rural Neighborhood (EDRN) within the Orcutt Community Plan area. From approximately 1920 to 2005 approximately 40-acres on APN 113-250-016 was used for row crop agricultural and some cattle grazing. There are currently no agricultural uses on the project site, and the property is not subject to a Williamson Act Contract. Soil classification for the area proposed for development ranges from Class II to Class XII. Only a small portion of the site (2%) is identified as containing Class II prime soils.

Scope of SEIR:

- Analyze the proposed project's impacts to Agricultural Resources in compliance with the County's *Environmental Thresholds and Guidelines Manual* Agricultural Resources section (approved by the Board of Supervisors, August 1993).

AIR QUALITY

Impact Discussion:

The Orcutt Community Plan (OCP) EIR examined the air quality setting of the project region and the potential impacts resulting from development under the OCP. The OCP EIR concluded that impacts related to the generation of ozone precursors (Impact AQ-1), dust and PM_{10} (Impact AQ-2), and Clean Air Plan consistency (Impact AQ-3) were potentially significant. Development of the project would potentially result in construction-related air quality impacts, including dust generation from grading for the access roads and building pads, and air pollution emissions from construction equipment and construction vehicles. Short-term emissions of ozone precursors (NOx and ROC) during project construction would result primarily from the on-site use of heavy earthmoving equipment. Due to the limited period of time that grading activities would occur on the project site, construction-related emissions of NOx and ROC would not be significant on a project-specific or cumulative basis. However, due to the nonattainment status of the air basin for ozone, the project should implement measures recommended by the APCD to reduce construction-related emissions of ozone precursors to the extent feasible. The implementation of the County's standard dust control measures would be in place prior to grading commencement. These standards are required on all new development. Long term air quality impacts associated with the proposed project would result from the increased vehicles trips to and from homes on the project site as well as increases in onsite electricity and natural gas consumption.

Scope of SEIR:

APCD's guidance document, *Scope and Content of Air Quality Sections in Environmental Documents* (updated June 2017) should be referenced for general guidance in assessing air quality impacts in the SEIR. The document is available online here: https://www.ourair.org/wp-content/uploads/ScopeContentJune2017-LimitedUpdate.pdf.

- Assess air quality setting.
- Assess air quality impacts associated with grading and construction, and long-term operational activities from the development of the 146-unit residential project. The assessment should include a quantification of emissions from project sources, direct and indirect, as applicable.
- Assess long term air quality impacts and health risks associated with air toxics such as diesel emissions from vehicles traveling on Hwy 1 to prospective residents of the proposed project.
- Peer review the *Greenhouse Gas Emissions Technical Report for The Neighborhoods of Willow Creek & Hidden Canyon* (Dudek, February, 2018)
- Identify mitigation measures as necessary, including standard emission control conditions applied by the Santa Barbara Air Pollution Control District.
- Assess whether the proposed project is consistent with the regional growth assumptions in the Santa Barbara County Air Pollution Control District 2016 Ozone Plan.
- Assess cumulative air quality impacts as well as the project's contribution to those impacts.
- Assess any residual impacts of the project.

Sources of Information:

- *Greenhouse Gas Emissions Technical Report for the Neighborhoods of Willow Creek & Hidden Canyon Project* (Dudek, February, 2018)

BIOLOGICAL RESOURCES

Impact Discussion:

A variety of native and non-native communities are found within and in the immediate area of the project site, including arroyo willow thickets, coast live oak woodland, California sagebrush scrub, coyote brush scrub, purple needlegrass grassland, perennial rye grass grassland, cattail marshes, California annual grassland and eucalyptus groves (Biological Resources Assessment, Dudek, December 2016, revised June, 2017). California annual grasslands cover the majority of the project site. The natural vegetation and habitat features on the project site such as seasonally ponded areas and drainages contain key ecosystem components that increase habitat value and complexity for a wide variety of wildlife and plant species. Among these occurring on the project site are the federally listed endangered California Tiger Salamander (CTS) and California Red-Legged Frog (CRLF) and many other special-status plant and wildlife species. A known CTS breeding pond (SAMA-21) is located on APN 113-250-014, approximately 265 ft. east of the proposed entry to the Willow Creek Neighborhood.

The OCP EIR identified General Impacts to Biological Resources resulting from development of the site as BIO-8 (trail construction and use), BIO-11 (Dutard/Solomon Trunk Line), BIO-19 (elimination of 2,000 acres of habitat/habitat fragmentation, BIO-20 (Elimination of Wetlands (Marsh)), BIO-23 (Elimination of Grasslands), BIO-27 (Elimination of Central Dune Scrub), BIO-28 (Elimination of Riparian Communities), BIO-36 (Sewer System Policies), and BIO-32 (Removal of Eucalyptus Woodlands) listed in Section 5.2 of Volume I. The site specific impacts identified in the OCP EIR are KS21-BIO-1 (Loss of Vegetation and Habitat), and KS21-

BIO-2 (Impacts to Wildlife).

The OCP EIR determined that the implementation of site specific mitigation measures KS21-BIO-1, KS21-BIO-2, and KS21-BIO-3 would reduce the loss of habitat and riparian vegetation to less than significant (Class II). However, impacts to wildlife would remain Significant and Unavoidable (Class I). The OCP EIR did not analyze the project's potential to impact CTS and CRLF as these species were not federally or state listed as endangered or threatened when the OCP EIR was adopted. Due to the proposed project's close proximity to the existing CTS breeding pond on the adjacent golf course property, the project has the potential to result in Class I significant and unavoidable impacts to these federally listed endangered species. The loss of onsite vegetation/habitat, indirect impacts to offsite vegetation/habitat, impact to onsite drainages, creeks, riparian habitat, wildlife corridors and construction impacts and operational impacts would need to be evaluated in the SEIR. Specific temporary or long-term impacts to Orcutt Creek itself from the proposed project must be evaluated for potential impacts to riparian habitat and sensitive species.

Noise and lighting associated with buildout of the project could disturb wildlife and hinder wildlife activities. Development of the proposed project could result in water quality impacts to area drainages due to storm water runoff and increased pollutants from typical residential development and activities (e.g. oil, grease, etc.), soil erosion and sedimentation, and construction activities and waste. The use of non-native plant material in landscaping and restoration could result in increased levels of invasive species occurring in native habitats and affect the long-term integrity and persistence of native plant communities in the project area. Lastly, increased use of the open space area by the public with the creation of the new public trails, as well as by new residents within the site could potentially impact sensitive species and habitats. Impacts to these resources are *potentially significant.*

Scope of SEIR:

- Peer review the *Biological Resources Assessment Report for: The Neighborhoods of Willow Creek & Hidden Canyon* (Dudek, December 2016).
- Peer review the *Addendum to the Biological Resources Assessment Report & Biological Resources Memo* (Dudek, June 12, 2017).
- Peer review the *Tree Memo for: The Neighborhoods of Willow Creek & Hidden Canyon* (Dudek, June 12, 2017).
- Peer review the *Open Space Management Plan for: The Neighborhoods of Willow Creek & Hidden* Canyon (Dudek, December 2016, revised June 2017).
- Peer review the *Wetland Delineation and Jurisdictional Determination for: The Neighborhoods of Willow Creek & Hidden Canyon (*Dudek, June 2017).
- Ground-truth the plant community mapping included in the Biological Resources Assessment Report prepared for the project (Dudek, December 2016) for inclusion within the SEIR.
- Analyze potential impacts from the project to wildlife corridor movement areas.
- Analyze potential impacts from the project to the Monarch butterfly.
- Assess and describe the current baseline conditions and habitat quality and rarity throughout the site, with particular emphasis on identifying endangered, threatened, rare, and locally sensitive

species, habitats, and plant communities within and in close proximity to the proposed development and access roads.

- Assess direct and indirect, short- and long-term impacts to existing biological resources from proposed development, including, but not limited to: loss of native and non-native habitat, sedimentation from grading and site preparation efforts, wildlife corridor movement, and indirect impacts of increased human activity and night lighting.
- Consider impacts to listed species and other regulated resources, if any, and discuss the role of other regulatory agencies (e.g. USFWS, CDFG, USACOE, etc.).
- Identify feasible mitigation measures, if any, and identify residual impacts.
- Assess cumulative impacts to biological resources and the project's contribution to those impacts.

Sources of Information:

- *Biological Resources Assessment for Selected Key Sites,* prepared by Katherine Rinlaub, July 1995.
- *Orcutt Community Plan Biological Resources Map & Environmental Impact Report*
- *Biological Resources Assessment Report for: The Neighborhoods of Willow Creek & Hidden Canyon,* prepared by Dudek, December 2016.
- *Addendum to the Biological Resources Assessment Report & Biological Resources Memo* prepared by Dudek, June 12, 2017.
- *Tree Memo for: The Neighborhoods of Willow Creek & Hidden Canyon,* prepared by Dudek, June 12, 2017.
- *Open Space Management Plan for: The Neighborhoods of Willow Creek & Hidden Canyon,* prepared by Dudek, December 2016, revised June 2017.
- *Wetland Delineation and Jurisdictional Determination for: The Neighborhoods of Willow Creek & Hidden Canyon,* prepared by Dudek, June 2017.
- *The Neighborhoods Specific Plan Environmental Documentation* (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

CULTURAL RESOURCES

Impact Discussion:

Several County documents include policies, standards and mitigation measures to help ensure that new development does not have a significant impact on archaeological resources, including the Environmental Thresholds and Guidelines Manual and "Historic and Archaeological Elements of the Santa Barbara County Heritage Management Plan, Cultural Resources Guidelines."

The project site was previously surveyed for archeological resources by Laurence W. Spanne, M.A. in 1980 and 2004. The portion of Key Site 22 within which the proposed sewer line extension is located was subject to an intensive ground surface survey by Snethkamp and Colten (1982). The 2004 Supplemental Phase I Archaeological Survey Report was completed for a previously proposed project which proposed to develop 203 residential units on 70-acres of the

project site. One historical archaeological site (CA-SBA-1169/H) and one isolated artifact (RME-1) were identified in the Phase I investigation. Archaeological Site SBA-1169/H has been evaluated as a significant site worthy of preservation.

Scope of SEIR

- Incorporate into the document the results of the previous archaeological resources studies.
- Incorporate into the document the results of the SB 18 & AB 52 Consultation conducted by Santa Barbara County.
- Analyze the impacts of the project and identify mitigation measures as necessary.
- Assess the cumulative impacts to cultural resources and discuss the project's contributions to those impacts.
- Assess any residual impact levels.

Sources of information

- *Investigation of Historical Resources* prepared by Greenwood & Associates, June 12, 1980.
- *Archaeological Evaluation* prepared by Laurence Spanne, May, 1980.
- *Orcutt Creek Archaeological Survey Letter Report* (Snethkamp, Pandora and Roger Colten, 1982).
- *Supplemental Phase I Archaeological Survey Report* prepared by Laurence Spanne, May 27, 2004.
- *The Neighborhoods Specific Plan Environmental Documentation* (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

ENERGY

Impact Discussion:

Development associated with the proposed project and other related cumulative projects in the Orcutt and Santa Maria areas could result in increased demands on electrical and/or natural gas services and facilities within the Santa Maria Valley. While there are no specific CEQA or County thresholds related to natural gas or electricity impacts, individual projects are required to obtain a "will serve" letter from the applicable service provider, which would indicate whether adequate electricity and natural gas supplies would be available to each future project. This would ensure that future projects do not over-capacitate existing electricity and natural gas systems. The project is not expected to result in significant impacts to energy resources.

Scope of SEIR:

- Include a discussion regarding the project's setting as well as an impact analysis addressing the project's potential to impact demands to energy.
- Identify any required mitigation measures to reduce any project specific impacts to energy.
- Assess the cumulative impacts to energy and discuss the project's contributions to those impacts.

- Assess any residual impact levels.

FIRE PROTECTION

Impact Discussion:

The project site is bounded by Highway 1 to the north, agricultural land to the west and east, and the Solomon Hills to the south. Primary access to the project site would be provided by four driveways accessed from Highway 1. The topography of the site varies, ranging from essentially flat while the southern boundaries slope upward. Onsite vegetation consists of chaparral, oak woodland, oak savannah, coastal sage scrub, and native grasses with the exception of the golf course, which is planted with turf.

The County of Santa Barbara has designated the site as a high fire hazard area. The construction of residential structures in a designated high fire hazard area would expose additional people to fire hazards and would also introduce additional sources of wildland fire initiation due to conversion of the presently undeveloped area to a populated area. Santa Barbara County Fire Station 22 serves the part of Orcutt in which Key Site 21 is located. The project site is located within a 5 minute response time from this fire station. Standard Fire Department requirements such as road naming requirements, address number standards, hydrant requirements, and review of site circulation and design of secondary internal Emergency Vehicle Access (EVA) roads would apply and would reduce the risk from wildland fires; however, impacts from the introduction of new residential development into a high fire hazard area would remain potentially significant.

The Fire Department has reviewed proposed project plans and has determined that the access design is acceptable and that payment of impact fees (which are dedicated toward provision, in the Orcutt Community planning area, of a new fire station and/or additional personnel) would reduce cumulative impacts associated with Fire Protection to potentially significant and mitigable.

Scope of SEIR:

- Work with Fire Department representatives to confirm adequate water pressure, fire hydrants, emergency access and otherwise comply with the Fire Department's development standards.
- Determine the required extent of defensible space and any necessary vegetative management requirements.
- Identify mitigation measures as necessary to further reduce fire safety impacts to a less than significant level. In part, the mitigation measures should ensure that the applicant's proposed improvements and measures to minimize impacts to fire protection comply with applicable development standards.
- Evaluate cumulative fire protection impacts of the proposed projects and other similar past, present and probable future projects in the area.
- Identify any residual impacts of the proposed projects after implementation of mitigation measures.

GEOLOGY AND SOILS

Impact Discussion:

The project site is characterized by Pleistocene geologic age older dissected sediments comprised of dune sands that are weakly consolidated (Qos) in the northern portion of the site and the wind deposited Orcutt sand (Qo) in the southern portion of the site. The project area lies on the northern flank of the northwest/southeast trending, southeast plunging, Casmalia anticline. The Casmalia anticline is the geological structural feature that gives rise to the oil field activities in the area, namely the Casmalia Oil Field that lies south of the site in the Casmalia hills. The dune sands and Orcutt sand that lies beneath the project site are considered highly erodible and potentially subject to collapse under certain load and moisture conditions. These sandy soils are subject to severe erosion by wind and water, especially when disturbed by development (Orcutt Community Plan, 1997).

No active faults are located on the project site or in the vicinity of the project site (State of California, 1997). The cities of Casmalia, Orcutt, Santa Maria and Arroyo Grande are not listed as cities affected by active faults in the State of California Special Publication 42 which describes Fault Rupture Hazard Zones in California (1997). According to the Orcutt Community Plan, the Orcutt/Casmalia fault is recognized as potentially active due to offsets of the formation along its trend. The Orcutt Community Plan indicates that the only fault with setback policy implications for new development on the site is the Orcutt/Casmalia fault located approximately 1,300 feet south of the site. This fault is located of the urban area crossing the southern foothills and is considered to be potentially active. The nearest active fault to the project site is the Zaca Creek Fault located southeast of the site near the community of Los Alamos. Ground shaking could also occur in the project area due to fault rupture along other large active faults in the Southern California area, including the San Andreas Fault Zone and the probable existence of large blind thrust faults.

The Santa Barbara County Seismic Safety and Safety Element indicates that the area surrounding the project site would be subject to moderate ground shaking from the Orcutt/Casmalia fault and rates the project site as having moderate potential for compressible/collapsible soils. In addition, the Orcutt Community Plan indicates that the Orcutt Sand and Dune sands are generally unconsolidated, poorly cemented, highly erodible and potentially subject to collapse under certain load and moisture conditions. Santa Barbara County maps indicate that the project site has a low to moderate risk rating for liquefaction. While the site is not located in a distinctly high-risk area, the variable rating assigned by the County indicates that impacts to the site with respect to liquefaction could be potentially significant. Soils beneath portions of the project site may have a moderate potential for damage to building foundations and concrete slabs due to expansion.

Based upon the site's moderate hazard rating and the results of the geotechnical studies for the site completed by GeoSolutions, Inc., the potential for impacts relating to collapsible soils on foundations and slabs is considered potentially significant.

Scope of SEIR:

- Confirm analysis provided in the GeoSolutions, Inc. Soils Engineering Report (June 7, 2016) for the project site.
- Assess the geologic impacts associated with grading and site preparation for the proposed project.
- Assess the adequacy of recommended mitigation measures in the GeoSolutions, Inc. report and revise, add to, or amplify as necessary.
- Identify residual impact levels of the project after mitigation.
- Assess the cumulative impacts to geology and soils and discuss the project's contributions to those impacts.

Source of Information:

- *Soils Engineering Report and Engineering Geology Investigation (GeoSolutions, Inc., June 7, 2016)*

HAZARDOUS MATERIALS

Impact Discussion:

The 176-acre project site is undeveloped. Adjacent parcels are developed with the Rancho Maria Golf Club which consists of an 18-hole golf course, club house/restaurant, and golf shop. Based upon historic agricultural use of the northern and eastern portions of the site, there is a potential for pesticides and/or herbicides to be present in the soil. These compounds may be disturbed during construction and grading activities for new access roads and homes.

Continued urban development in the Santa-Maria-Orcutt Area will cumulatively increase the potential for exposure to existing hazards associated with hazardous materials. If soil and groundwater contamination is found to be present on sites planned for future development, impacts associated with such contamination would be limited to the individual development site and the immediate vicinity and would not contribute to any cumulative health and safety impacts in the community. It is anticipated that any necessary remediation would be completed in accordance with applicable regulatory requirements prior to development of any sites determined to have significant hazards. Hence, the project's contribution to potential cumulative hazardous materials impacts would not be cumulatively considerable and no further evaluation in the SEIR is necessary.

Scope of SEIR:

- Assess the Hazardous Materials impacts associated with grading activities for the proposed project.
- Identify any mitigation measures required to reduce potentially significant impacts to less than significant.
- Identify residual impact levels of the project after mitigation.

HISTORIC RESOURCES

Impact Discussion:

No structures or formal landscape features currently exist on the project site. As a result, no impacts to historic resources are anticipated.

Scope of SEIR: **No further environmental analysis is recommended.**

LAND USE

Impact Discussion:

The Orcutt Community Plan and other applicable elements of the Comprehensive Plan include environmentally sensitive habitat area provisions, recreational goals, circulation and traffic needs, and other environmentally protective policies. The SEIR should review the project for conformance with these policies and propose mitigation where needed to gain consistency with these policies. An exhaustive listing of policies in the Land Use Section is not necessary, but any potential inconsistencies with environmentally protective standards should be addressed.

The increase in population resulting from the project would be consistent with growth projections for the area and within the Orcutt Community Plan (Objective LU-O-1 called for the development of up to 3,751 new dwelling units). The proposed project would utilize existing wastewater and solid waste facilities that serve the urban areas of Orcutt. Water services would be provided by a new private mutual water company with two new water wells and associated infrastructure. A new sewer line would be extended across Key Site 22 to the north to the existing Laguna County Sanitation District main line. No additional infrastructure or facilities beyond those necessary to accommodate the proposed project would be required.

Scope of SEIR:

- Review the proposed project for consistency with land use policies such as those contained in the Orcutt Community Plan and Comprehensive Plan.
- Assess the character of surrounding land use and development and analyze the compatibility of the proposed project development with that character.
- Identify mitigation measures, if any, to reduce land use impacts and resulting residual environmental effects.
- Assess cumulative impact levels and the contribution of the proposed project to these cumulative impacts.
- Identify residual impact levels of the project after mitigation.

NOISE

Impact Discussion:

The primary source of noise near the project site is from traffic on State Highway 1. The Rancho Maria Golf Course operational noises, including maintenance equipment, golf carts and vehicles entering the facility would also contribute to a lesser extent to the noise in the vicinity. The Santa Maria airport is located approximately 7,500 feet northeast of the project site. Due to the proximity of the airport the site may be subject to noise from aircraft.

Land uses that are considered sensitive to noise impacts are referred to as "sensitive receptors." The nearest existing sensitive receptor to the project site are two single family residences located approximately 225 feet and 540 feet north of the northeastern project boundary. Construction of the 146 residential units could expose the existing residents located within 1,600 feet to short-term construction generated noise levels exceeding the County threshold of 65 dB CNEL. This is considered a potentially significant impact but can be mitigated by standard conditions of approval placed on future development projects.

As described in the project description above, primary access to the site would be provided via three (3) new access roads off of State Highway 1. The Traffic and Circulation Study prepared for the project includes an analysis of the quantity of traffic generated by the project to State Highway 1 and surrounding intersections. Traffic generated by the project may result in noise level increases along roadways in the project vicinity. In addition, the project would contribute incrementally to cumulative noise impacts in combination with other planned and pending projects in the vicinity.

Scope of SEIR

- The SEIR should analyze potentially new or substantially greater environmental impacts due to noise generated by short-term construction and long-term operational noise.
- Assess cumulative impact levels and the contribution of the proposed project to these cumulative impacts.
- Identify residual impact levels of the project after mitigation.

PUBLIC SERVICES

Impact Discussion:

The OCP EIR identified significant and unavoidable (Class I) impacts on police protection, solid waste, schools, and library services as a result of full buildout of the Community plan area. A site specific Key Site 21 analysis of impacts to police protection, solid waste, wastewater, schools and library services were not completed as part of the OCP EIR.

Public Schools: Key Sites 21 is located in the community of Orcutt and within the Orcutt Union School District (OUSD) and the Santa Maria Joint Union High School District (SMJUHSD). According to the County of Santa Barbara Environmental Thresholds and Guidelines Manual, a

significant impact on school services is considered to occur when a project would generate sufficient students to require an additional classroom. This assumes 29 students per classroom for elementary/junior high students, and 28 students per classroom for high school students, based on the lowest student per classroom loading standards of the State school building program. This threshold is applied for those school districts currently approaching, at, or exceeding their current capacity.

The table below summarizes the expected student generation from buildout of the proposed project. The generation rate is based on the Orcutt Union School District Developer Fee Justification Study (1994).

Projected Students at Orcutt Union School District and Santa Maria Joint Union School District				
Proposed Residential Units	**Student Generation***			
146	**Elementary School**	**Junior High**	**High School**	**Total**
	41	14	14	**69**
**Student generation factors of 0.38 students per unit for elementary school, 0.38 students per unit for junior high school, and 0.099 students per unit for high school.*				

Post-Project Local School Student Enrollment[1]						
School	**Operating Capacity**	**Current Student Enrollment**	**Current % capacity utilization**	**Students generated from project**	**Enrollment with project**	**Capacity with project**
Pine Grove Elementary	621	529	85%	41	570	92%
Orcutt Junior High School	553	570	103%	14	584	106%
Ernest Righetti High School	2,517	2,175	86%	14	2,189	87%

The proposed residential development on Key Site 21 would add 55 students to the OUSD and 14 students to the SMJUHSD schools. The additional students generated by the project can be accommodated at Pine Grove Elementary and Ernest Righetti High School. However, the addition of 14 junior high students to Orcutt Junior High School would result in the need to create a new classroom. Thus impacts to schools would be *potentially significant and unavoidable (Class I)*. A project's contribution to cumulative impacts to schools is considered significant if the project specific impact as described above is considered significant. In order to offset impacts to school services, the applicant would be required to pay state-mandated school impact fees. Pursuant to Section 65995 (3) (h) of the California Government Code (Senate Bill

[1] *The Neighborhoods Specific Plan Environmental Documentation* (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

50, chaptered August 27, 1998), the payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." As a result of this statutory limitation on additional mitigation, payment of school impact fees renders impacts *less than significant*.

Residential development in the area under cumulative conditions could generate enough new students such that it may exceed the capacity of schools within the OUSD and therefore require new or altered school facilities in the future. Future facilities that would need to be constructed as a result of cumulative development would be subject to subsequent environmental review. As discussed above, the collection of state-mandated fees (pursuant to Section 65995 (3) (h) of the California Government Code) is considered full and complete mitigation for impacts to public schools. Through the payment of impact mitigation fees, potential *cumulative impacts* related to public schools would be *less than significant*.

Solid Waste: The California Integrated Waste Management Act of 1989 (State Assembly Bill 939) required all cities and counties to develop a Source Reduction and Recycling Element (SRRE) for diverting 50% of their solid waste from landfills by the year 2000. City and County governments throughout the state of California responded by adopting waste diversion programs to meet the requirements of AB 939. To comply with the goals set by AB 939, the County of Santa Barbara requires a reduction in solid waste generation for all new development projects in the County. County waste characterization studies estimate that implementation of a source reduction and recycling program could reduce the total volume of waste generated by new development projects by approximately 50%.[2]

The proposed project consists of the creation of 146 new residences. Pursuant to the *County Thresholds and Guidelines Manual*, solid waste generation from those units would equal:

2.74 people/unit x 146 units x 0.95 tons/year = 380 tons of solid waste/year

A project is considered to result in significant impacts to landfill capacity if it would generate 196 tons per year of solid waste. Required source reduction, recycling and composting would reduce the waste stream by approximately 50% resulting in a total generation of approximately 190 tons of solid waste per year which is below the County's threshold. New pending thresholds for construction and demolition waste would not likely be triggered by the proposed project given the level of proposed development. Nonetheless, application of mitigation measures requiring the recycling of demolition waste would be imposed at the time of future development. Therefore, impacts to solid waste would be *less than significant*. However, according to County thresholds, a project that would generate 40 tons of solid waste per year would be considered cumulatively significant. Since the proposed project would exceed the threshold for cumulative solid waste generation, cumulative impacts would be considered *significant*.

[2] *Santa Barbara County Environmental Thresholds and Guidelines Manual* (1995).

Police Protection:

The County of Santa Barbara Thresholds and Guidelines Manual does not include significance thresholds for police protection. However, the Santa Barbara County Sheriff's Department (SBCSD) utilizes a standard service ratio of officer to resident of 1:1,200 and five-minute maximum response time. The increase in population resulting from the development of Key Site 21 would cause the police officer to population ratio to be further exceeded, increasing demand on existing resources. The current permanent staffing is 22 officers. Based on this value, the current service ratio is one officer per 1,368 residents in the Orcutt area. This exceeds the County standard of 1:1,200 and represents a deficit in existing police protection services[3]. Additional outside support is provided through Mutual Aid Agreements with the Santa Maria and Guadalupe Police Departments and the California Highway Patrol. However, the project's contribution to the overall cumulative impact on the demand for police protection services would be potentially *Significant and unavoidable* (Class I) due to the preexisting deficit in police protection services.

Emergency and Health Care Services:

The additional residents generated by the proposed project could reduce service ratios and response times for AMR ambulance service. However, AMR and health care services within the County would continue to be guided by the authority of Santa Barbara County Public Health Department (SBCPHD). Ambulance service and health care facilities are continually monitored by the SBCPHD to ensure adequate service is being provided to County residents. If ambulance and health services became inadequate as determined by SBCPHD such that new or expanded facilities were needed, the construction of such facilities could result in environmental impacts. However, such projects would be subject to subsequent environmental review. In addition, ambulance services are not dependent upon building facilities as ambulance vehicles are placed strategically throughout the County using a computer data system, which calculates where they should be located throughout the day. Marian Medical Center recently completed an expansion of the hospital that nearly doubled its current patient capacity in order to meet future demand expected through the year 2020. Therefore, impacts related to ambulance service and health care services would be *adverse, but less than significant*.

Water and Sewer Service:

Water would be provided through a newly formed mutual water company. A new Community Water System would be designed that would include two new water wells. Waterlines would be installed from the water system to each of the Tracts. A hydro-pneumatic tank system and a storage tank facility are also proposed to be installed as a part of the water system. The net consumptive use of the Neighborhoods Specific Plan is estimated to be 106.02 AFY. Sewer service for The Neighborhoods Specific Plan would be provided by the Laguna County Sanitation District. The Neighborhoods Specific Plan wastewater demand is estimated to be 237,000 gallons per day. The proposed onsite collection system is comprised of a network of

[3] *The Neighborhoods Specific Plan Environmental Documentation* (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

gravity sewer lines located in the private roads serving the individual units that will meet at HWY 1 and tie into a recorded easement to the 24" sewer main to the North. While the project specific impacts would be reduced to less than significant levels, the project's contribution to cumulative wastewater impacts resulting from buildout under the OCP would remain *potentially significant and unavoidable (Class I).*

Scope of SEIR:

- Confirm the water demand for the project based on proposed development acreage, number of residences, and consumptive use factors that are contained in the *County's Environmental Thresholds Manual.*
- Assess the impacts of the project on solid waste and wastewater and identify additional mitigation measures as necessary.
- Assess the cumulative solid waste and wastewater impacts and the project's contribution to those impacts and identify mitigation measures as necessary**.**
- Identify any residual impacts upon implementation of mitigation**.**

Sources of Information:

The Neighborhoods Specific Plan Environmental Documentation (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

RECREATION

Impact Discussion:

The OCP EIR identified *significant and unavoidable* (Class I) impacts to recreation resulting from buildout of the plan area related to increased demand for and use of parks and recreational facilities, inadequate funding for construction and maintenance of parks and recreation facilities, loss of open space and established public use of trails. A site specific analysis was not performed for recreation at Key Site 21.

The proposed project includes the construction of two new subdivisions (146 total single family dwellings) adjacent to the existing Rancho Maria Golf Course, a public recreational amenity which has been operating since the late 1960's. The SEIR will need to analyze potential conflicts between the recreational activities on the golf course and the proposed project. Some examples of potential conflicts between the two uses include damage to homes from errant golf balls, and the need for relocation of existing golf course amenities (ex. bathroom), fairways, greens, and tee locations which are within close proximity (or inside) the primary access easement for the Willow Creek subdivision.

Based on Orcutt's average household size of 2.74 persons per dwelling unit (U.S. Census, 2000), 146 new residential units would generate an estimated 400 residents. Based on the County standard of 4.7 acres of parkland per 1,000 residents, this would generate a need for approximately 1.90 acres of parkland. The proposed project includes 96.7-acres of private undisturbed open space in the two neighborhoods (12.5-acres of natural open space are located

on APN 113-250-015 which also includes the Golf Course entry but is not a part of either of the tentative tract maps). These undisturbed open spaces make up approximately 51% of the overall Neighborhoods Specific Plan area. There is an additional 29.8-acres of private managed open space that includes landscape, trailhead, trails, and fuel modification areas.

The Hidden Canyon Tract would include a public hiking trail to provide access from the residential development (Hidden Canyon) and State Highway 1 to the neighboring foothills as well as the Orcutt regional trail system, as required by OCP Key Site 21 Design Standard KS 21-5. Development impact mitigation fees would be assessed on the new residential development, and these fees would be use to develop new parklands elsewhere in the Orcutt area. Thus, impacts on parks demand from the proposed project would be *less than significant*.

The dedication of the public trail as identified in the OCP would offset the increased parkland demand resulting from the buildout under cumulative conditions. In addition, the payment of Quimby Act park fees would be required and these fees would be used to develop additional public parks serving the OCP area. Cumulative impacts are considered *less than significant*.

Scope of SEIR:

- Analyze the project's potential conflicts between the existing recreational activities on the golf course and the proposed residential development, including proposed primary and secondary access roads.

Sources of Information:

The Neighborhoods Specific Plan Environmental Documentation (Amec Foster Wheeler, Environment & Infrastructure, Inc., March, 2018)

TRANSPORTATION/CIRCULATION

Impact Discussion:

A Traffic and Circulation Study (Stantec, December 19, 2016) has been completed for the proposed project. According to this study, the proposed project is expected to generate 1,390 daily trips, with 110 trips occurring in the AM peak hour and 146 trips occurring in the PM peak hour. The existing plus project roadway levels would continue to operate at a Level of Service (LOS) A during both the AM and PM peak hour under the existing plus project conditions and impacts to traffic levels would be *less than significant*. The study area intersections would continue to operate at a Level of Service (LOS) A-C during both the AM and PM peak hour under project-specific conditions, which is considered acceptable based on County and Caltrans standards. Therefore, the proposed project would result in *less than significant* project-specific intersection impacts. The cumulative analysis found that the project would generate a cumulative impact at the Foxenwood Lane / Clark Avenue intersection during the AM and PM peak hours. The southbound approach contains one shared left-turn/right-turn lane. Widening of the southbound approach to provide for separate left-turn and right-turn lanes would reduce the delays to an acceptable (LOS C) level.

Access to the site is proposed via three new private driveways from State Highway 1. One driveway is proposed at the western boundary of the site to access the Willow Creek Subdivision. Two new driveways are proposed between the Rancho Maria Golf Club driveway and the eastern boundary of the site. These driveways would serve the Hidden Canyon subdivision. Because State Highway 1 is a State facility, the proposed new roadway intersections are required to conform to the design criteria contained in Section 405.7 of the Highway Design Manual (Caltrans, March 2014).

Proposed frontage improvements include widening of State Highway 1 adjacent to the project site within the existing 40 ft. right-of-way. The proposed improvements include two 12' wide travel lanes and 8' wide shoulders. Initial field review indicates that corner sight distance requirements (from a vehicle on the project driveway to an approaching vehicle on State Highway 1) for a design speed of 65 mph (715 feet) have been met. No visual obstructions exist along the straight section of the Highway adjacent to the project frontage. The required corner sight triangles and vegetation setbacks will be verified as part of the final driveway design.

The preliminary site plan indicates that the on-site circulation of the western development (Willow Creek) consists of a main driveway that connects to the residential streets serving the single-family dwellings. Secondary access is proposed via a connection to the existing driveway serving the Rancho Maria Golf Club. The access plan for the eastern subdivision (Hidden Canyon) consists of one main driveway and residential streets. Secondary access is proposed via a 25-foot wide driveway located along the site's eastern boundary. The onsite circulation plan will be designed pursuant to County design standards to accommodate emergency vehicles, service vehicles and delivery trucks.

The Orcutt Community Plan (OCP) identifies a proposed extension of Union Valley Parkway (UVP) through Key Site 22, located directly across and north of Key Site 21. Discussions with County Public Works staff indicates that the final location of the UVP connection to State Highway 1 has not been determined, and may not align with the proposed easterly driveway because of several factors, as discussed below:

- Key Site 22 has a number of environmental constraints that would make future development within Key Site 22, including the roadway extension, very challenging.
- Although a "preferred roadway alignment" has been identified in the Orcutt Community Plan, this alignment is not final and the location and width of the roadway is largely dependent upon the intensity of the development on Key Site 22.
- If UVP were to be extended in the future, the County could develop alternative alignments to accommodate project access locations, or may be agreeable to a UVP intersection between the project access ways.

The SEIR should evaluate short-term construction-related traffic impacts, potential impacts on public and alternative transportation, and study the adequacy of emergency access to Key Site 21 in light of the specific access plans.

Scope of SEIR:

- Independently evaluate and explain the results of the traffic study.
- Evaluate the traffic hazard impacts of the project resulting from the new intersections on Hwy 1.
- Assess cumulative and buildout impacts to transportation/circulation (intersection and segment analysis) and identify the project's contribution to those impacts.
- Identify mitigation measures to reduce impacts to less than significant levels, if applicable.
- Assess residual impacts of the project after mitigation.

Source of Information:

Traffic and Circulation Study, Stantec, December 19, 2016

WATER RESOURCES /FLOODING

Impact Discussion:

The proposed project would result in a substantial increase in impervious surfaces, thus increasing runoff and altering the drainage patterns currently experienced at the site, and in the project site area. Increased surface runoff associated with the increase in impervious surfaces results in greater transport of common pollutants into nearby creeks and the storm water system. Oil leaks, grease, brake fluid, detergents and other similar pollutants that are commonly generated from parked cars and residents working on or washing cars could be transported to Orcutt Creek and area storm drains during rain events, resulting in potential water quality impacts. In addition, fertilizers, pesticides, and other common chemicals and nutrients used in residential landscaping could result in water quality impacts to Orcutt Creek or other area water bodies. Impacts from these activities are considered *potentially significant*.

Grading activities and vegetation removal during construction could result in short-term water quality impacts associated with increased erosion and the potential transport of pollutants into Orcutt Creek. Construction projects of one or more acres are subject to National Pollution Discharge Elimination System Phase II (non-point source) permit regulations, which require development of a Storm Water Quality Management Plan (SWQMP) to minimize water quality degradation through storm water monitoring, establishment of Best Management Practices (BMP), implementation of erosion control measures and implementation of spill prevention and containment measures during the life of the project. In addition, erosion and sediment control measures are required during construction to minimize erosion and associated impacts to water quality. Development of comprehensive plans for both construction and operation of the project would reduce potential effects to surface water quality from pollutant inputs associated with construction and operations.

The proposed project's total net water demand is estimated at 106.02 acre feet per year (AFY).Water would be provided through a newly formed mutual water company. A new Community Water System would be designed that would include two new water wells. Waterlines would be installed from the water system to each of the Tracts. A hydro-pneumatic

tank system and a storage tank facility are also proposed to be installed as a part of the water system. According to the *Santa Barbara County Environmental Thresholds and Guidelines Manual*, new pumpage as part of a proposed project may cause a loss of well yield in nearby wells due to: 1) a drop in water level as a cone of depression develops; or 2) a drop in water level due to storage depletion in a small isolated area. This could result in the current use on adjacent parcels being no longer supportable by the existing well(s). The proposed water wells are located in close proximity to existing water wells located on the adjacent Rancho Maria Golf Course property. In addition to an analysis of the proposed project's impacts to groundwater usage, the SEIR will also need to include a thorough analysis of the project's potential to create well interference to the existing water wells on the adjacent Rancho Maria Golf Course property.

Scope of SEIR:

- Assess long-term impacts to flooding associated with buildout of the proposed project, including water quality, flood hazards, and long term hydrological changes. Include an analysis of short-term impacts due to construction activities.
- Assess the project's impacts to groundwater usage.
- Analyze the project's potential to create well interference to the existing water wells on the adjacent Rancho Maria Golf Course.
- Identify mitigation measures necessary to reduce impacts to less than significant levels.
- Evaluate cumulative impacts to water resources and flooding and identify the project's contribution to those impacts.
- Assess residual impacts of the project after mitigation.

Source of Information:

- *Flood Control Studies for Hidden Canyon & Willow Creek* (June 1, 2017)
- *Stormwater Control Plan for Hidden Canyon* (June 1, 2017)
- *Stormwater Control Plan for Willow Creek* (June 1, 2017)
- *Water Well Feasibility Report for Orcutt Community Plan Key Site 21, Portion B* (Kear Groundwater, February 2, 2018)

5.0 PROJECT ALTERNATIVES

Pursuant to Section 15126.6 of the CEQA Guidelines, the SEIR will consider and analyze a reasonable range of alternatives (at least three) to the proposed project. The alternatives selected should be capable of avoiding or lessening any significant environmental effects of the proposed project. Specific alternatives will be identified early in the SEIR process.

6.0 SUMMARY

The scoping described above is intended to provide the public and responsible agencies with a summary of the preliminarily identified environmental issue areas concerning the project. P&D staff will be responsible for identifying all potential environmental impacts of the project and developing mitigation measures/conditions of approval to meet current standards to address

project specific impacts and the project's contribution to cumulative impacts as appropriate for each of the impact areas outlined above.

The application, project plans and technical reports in reference to the applicant's request are available and may be reviewed at the County of Santa Barbara Planning & Development Department located at 624 West Foster Road, Suite C, Santa Maria, CA 93455-3623.

If you have questions about this project, please contact Dana Eady, Senior Planner, at (805) 934-6266

7.0 ATTACHMENTS

A. Vicinity Map
B. Project Plans

ATTACHMENT A

Vicinity Map

ATTACHMENT B

Project Plans

NEIGHBORHOODS OF HIDDEN CANYON TRACT

TRACT 14,822
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00003

LEGEND

PROJECT BOUNDARY	
CENTERLINE	
PROPERTY/LOT LINE	
EASEMENT LINE	
EXIST. EASEMENT LINE	
SEWER MAIN	
EXIST SEWER MAIN	

ABANDONED ON, WELL AND NO BUILD EASEMENT (W)

ABBREVIATIONS	
FLOWLINE CURB	F.C.
FLOW LINE	F.L.
EDGE OF PAVEMENT	E.P.
ASPHALT CONCRETE	A.C.
HIGH POINT	H.P.
LOW POINT	L.P.
FINISHED GRADE	F.G.
GRADE BREAK	G.B.
RIGHT OF WAY	R/W, R.O.W.
SANITARY SEWER	S.S.
WATERLINE	W.L.
SQUARE FEET	SQFT
EXISTING	(E)
PROPERTY LINE	PL OR P.
DECORATIVE GRANITE	D.G.
PUBLIC UTILITY EASEMENT	P.U.E./PUE
PRELIMINARY TITLE REPORT	PTR
PEDESTRIAN ACCESS EASEMENT	PED

PROPOSED PROJECT INFORMATION

NUMBER OF LOTS: 57 PROPOSED
ZONING:

LOT NO.	AREA (SF)	ZONING
1	12,836	PRD
2	13,531	PRD
3	14,013	PRD
4	20,101	PRD
5	16,088	PRD
6	14,142	PRD
7	16,106	PRD
8	21,211	PRD
9	24,131	PRD
10	16,000	PRD
11	17,611	PRD
12	17,164	PRD
13	17,121	PRD
14	13,518	PRD
15	13,286	PRD
16	16,778	PRD
17	13,747	PRD
18	13,206	PRD
19	14,406	PRD
20	13,054	PRD
21	16,178	PRD
22	13,534	PRD
23	13,334	PRD
24	13,334	PRD
25	13,771	PRD
26	13,617	PRD
27	17,063	PRD
28	16,351	PRD
29	17,575	PRD
30	16,348	PRD

LOT NO.	AREA (SF)	ZONING
31	11,383	PRD
32	13,517	PRD
33	13,863	PRD
34	13,848	PRD
35	11,886	PRD
36	11,406	PRD
37	21,408	PRD
38	21,326	PRD
39	20,526	PRD
40	20,526	PRD
41	21,326	PRD
42	21,170	PRD
43	13,270	PRD
44	13,170	PRD
45	13,170	PRD
46	13,285	PRD
47	13,170	PRD
48	13,170	PRD
49	13,170	PRD
50	13,204	PRD
51	20,538	PRD
52	21,170	PRD
53	21,170	PRD
54	20,134	PRD
55	17,718	PRD
56	14,530	PRD
57	2,232,592	OPEN SPACE

NOTE:
- LOT 57(OPEN SPACE): UNDEVELOPED LAND, DEVELOPED LAND AND PROPOSED ROADS) OPEN SPACE; MAINTENANCE: HOA
- ROADS ARE TO BE PRIVATE & THERE WILL BE PARKING ON BOTH SIDES OF ROAD, EXCEPT ROAD G (SECONDARY/EMERGENCY ACCESS ROADWAY)

WATER TANK INFORMATION

MAX CAPACITY	300,000 GALLONS
HEIGHT	24 FT
DIAMETER	60 FT
MATERIAL	WELDED STEEL

OWNER'S CERTIFICATE

I HEREBY APPLY FOR APPROVAL OF THE DIVISION OF REAL PROPERTY SHOWN ON THIS PLAN AND CERTIFY THAT I AM THE LEGAL OWNER OF SAID PROPERTY AND THAT THE INFORMATION SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE: _____

SIGNED: _____

PRINTED NAME: ANTHONY F. WELLS

TITLE: MANAGING MEMBER AT SMOKEY RANCHES, LLC

PHONE NUMBER: 7202662-0126

STREET: 136 WEST MAIN STREET, SUITE G

CITY: SANTA MARIA STATE: CALIFORNIA ZIP CODE: 93458

F.I.R.M. INFORMATION

FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) AND FLOOD INSURANCE RATE MAP (F.I.R.M.) INFORMATION

COMMUNITY NUMBER: 6. 060331 PANEL NUMBER: 0155 G
DATE OF F.I.R.M. DEC 4, 2012 DATE OF F.I.R.M. AMENDMENTS:
FLOOD ZONE: X
THIS PROJECT IS LOCATED IN FLOOD ZONE X WHICH IS DETERMINED TO BE OUTSIDE OF THE 0.2 PERCENT ANNUAL CHANCE FLOOD PLAIN.

PROJECT INFORMATION

ASSESSOR'S PARCEL NUMBER: 113-250-016
NUMBER OF LOTS: 57
GROSS AREA: 108.73 ACRES 4,849,335 S.F.
AVERAGE LOT SIZE: 18,000
ZONING: PRD

LOT 57	HIDDEN CANYON (A.P.N. 113-250-016)		
	MANAGED OPEN SPACE		16.1 AC
	UNDISTURBED OPEN SPACE		39.3 AC
	DEVELOPED AREA	TANKS AND ACCESS ROADS	0.99 AC
		=TOTAL PAVED ROAD SURFACE	7.4 AC
LOT 1-56		TOTAL GROSS PRIVATE LOT AREA	53.0 AC
	TOTAL GROSS SITE AREA		108.7 AC

NOTE: BASIN IS INCLUDED IN MANAGED OPEN SPACE

UTILITIES

WATER:	A NEWLY FORMED MUTUAL WATER CO.
SEWER:	LAGUNA SANITATION
ELECTRICITY:	PG&E
GAS:	SOCAL GAS CO.
TELEPHONE:	FRONTIER
CABLE TV:	COMCAST CABLE

TITLE REPORT

FIRST AMERICAN
ORDER NO. 5576574-A
DATED: NOV. 29, 2016

LEGAL DESCRIPTION

HIDDEN CANYON NEIGHBORHOOD (A.P.N. 113-250-016)
THAT PORTION OF THE RAN PUNTA DE LA LAGUNA IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, SHOWN AS PARCEL C OF THE MAP FILED IN BOOK 85, PAGE 2 OF RECORD SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

BOUNDARY INFORMATION

BOUNDARY SHOWN HEREON IS BASED UPON THE MAP FILED IN BOOK 85, PAGE 2 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

EXISTING OFFSITE EASEMENT

(PARCEL 2 OF TITLE REPORT)

A 20' WIDE EASEMENT FOR SEWER LINE PURPOSES.

EXISTING ON-SITE EASEMENTS

(2)

2 (A) 5' WIDE INGRESS, EGRESS, WATER PIPES & INCIDENTAL PURPOSES.

GRANTED TO: RICHFIELD OIL CORP
RECORDED: SEPT. 18, 1940
INST. NUMBER: 7426, BOOK 303, PAGE 253 OF OFFICIAL RECORDS (VARIABLE WIDTH)

4 (C) EASEMENT FOR INGRESS, EGRESS, WATER LINES, PUBLIC UTILITIES, ROAD PURPOSES, DRAINAGE AND INCIDENTAL PURPOSES.

GRANTED TO: EDWINA H. BURNSAND FLORENCE H. BURNS.
RECORDED: JULY 16, 1987
INST. NUMBER: 35083, BOOK 2157, PAGE 609 OF OFFICIAL RECORDS
POL-A, POL-B, POL-C, POL-F (VARIABLE WIDTH)

7 (G) PRIVATE ROAD UTILITIES AND PIPELINES AND INCIDENTAL PURPOSES.

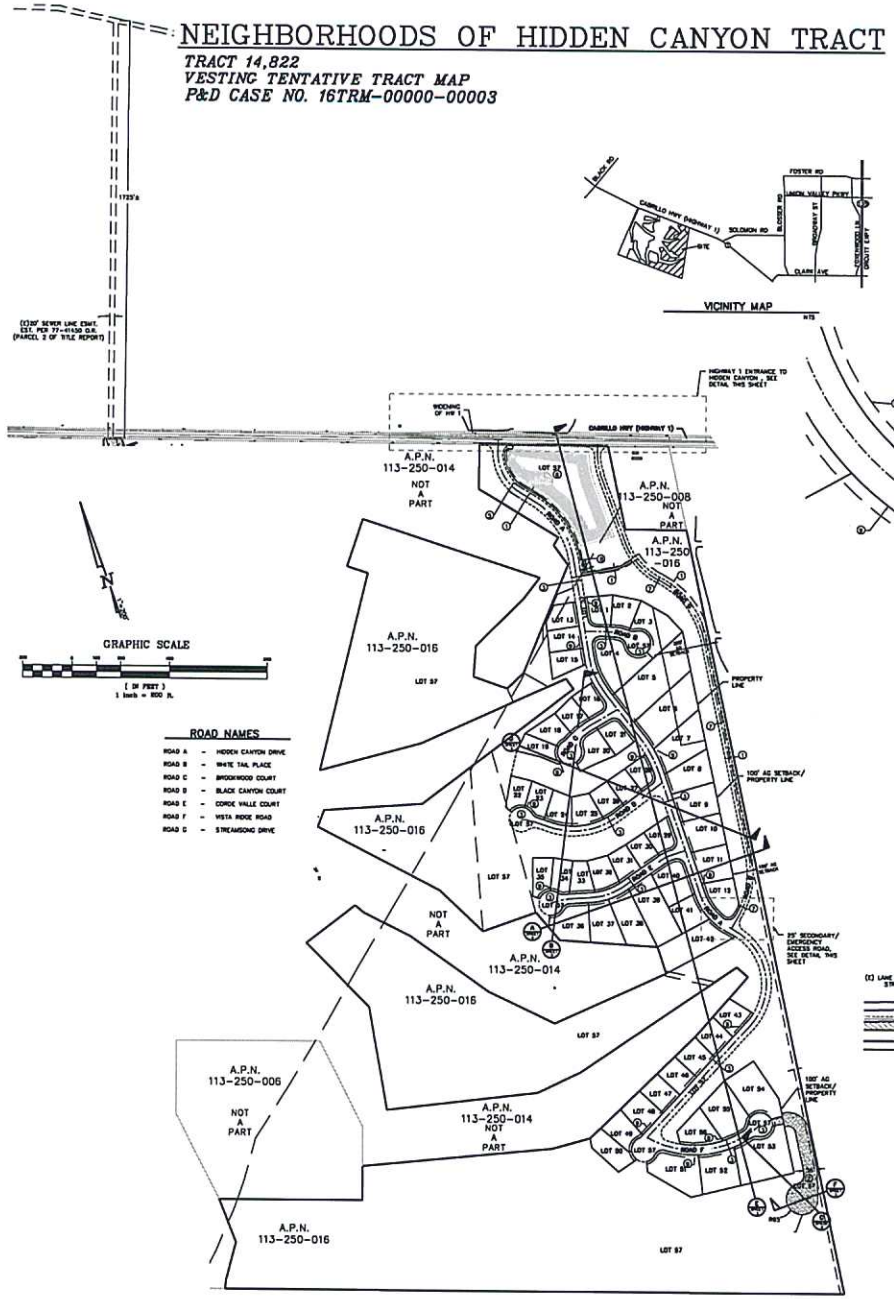
GRANTED TO: NEBLEY W. MUSCIO
RECORDED: SEPT. 11, 1979
INST. NUMBER: 79-43139 OF OFFICIAL RECORDS.
(LOCATION UNDETERMINED)

PROPOSED EASEMENTS

NOTE: SEE RANCHO PUNTA DE LA LAGUNA MAP BK. 80 PG. 2 OF RECORDS OF SURVEYS AS FILED IN THE OFFICE OF THE SANTA BARBARA COUNTY RECORDER FOR REFERENCES

(1) 15' PUBLIC PEDESTRIAN ACCESS/TRAIL EASEMENT.
TO: BE DEDICATED TO SANTA BARBARA COUNTY PARKS DEPT. AS PART OF TRACT MAP
(2) VARYING WIDTH WATER TANK, ACCESS, MAINTENANCE EASEMENT
TO: A NEWLY FORMED MUTUAL WATER CO. AS PART OF TRACT MAP.
(3) VARYING WIDTH PRIVATE ACCESS, P.U.E., PED ACCESS, SEWER, WATER AND DRAINAGE EASEMENT ACROSS LOT 57, SHOWN AS ROADS "A" THROUGH "F"
(4) 5' WATER LINE EASEMENT
TO: RICHFIELD OIL CORP
(5) PUBLIC ACCESS EASEMENT FROM HIGHWAY 1 TO TRAIL STAGING AREA ALONG ROAD A, SEE SHEET 3
(6) VARYING WIDTH PRIVATE DRAINAGE BASIN EASEMENT
(7) PRIVATE SECONDARY/EMERGENCY ACCESS EASEMENT SHOWN AS ROAD "G"
(8) PUBLIC TRAIL STAGING AREA AND TRAIL PARKING EASEMENT
(9) 10' P.U.E. AND PRIVATE PEDESTRIAN ACCESS EASEMENT

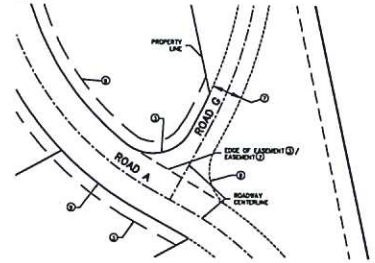
VICINITY MAP
NTS



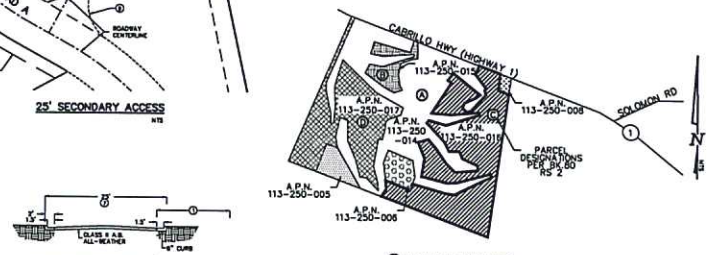
PROJECT MAP

ROAD NAMES

ROAD A	-	HIDDEN CANYON DRIVE
ROAD B	-	WHITE TAIL PLACE
ROAD C	-	BROOKWOOD COURT
ROAD D	-	BLACK CANYON COURT
ROAD E	-	CORDE VALLE COURT
ROAD F	-	VISTA RIDGE ROAD
ROAD G	-	STREAMSONG DRIVE



25' SECONDARY ACCESS
NTS



(7) DETAIL 7 AREA MAP
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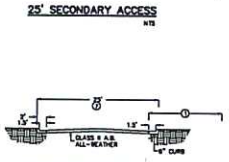
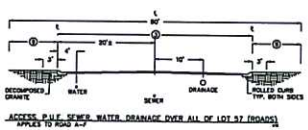
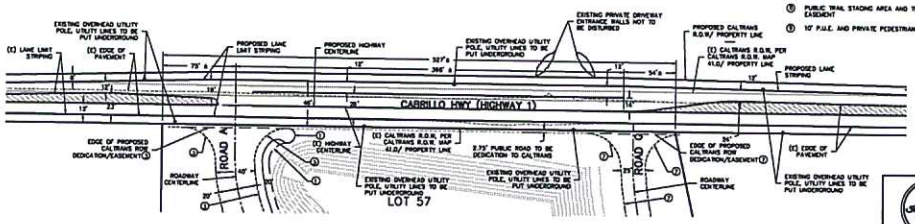


25' WIDE SECONDARY/EMERGENCY ACCESS ROAD
ROAD G



ACCESS, P.U.E. SEWER, WATER, DRAINAGE OVER ALL OF LOT 57 (ROADS) APPLIES TO ROAD A-F



HIGHWAY 1 ENTRANCE TO HIDDEN CANYON
NTS

1/3/16

Fergusson Surveying & Civil Inc.
3634 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-3727
FAX: 805-934-3468
DATE: JANUARY 2016

BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-5767

LICENSED LAND SURVEYOR — KENNY L. FARGEN — L.S. 4387 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — LIC NO. 59957 — CIVIL ENGINEER — STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	B.J.C.

REVISIONS

DATE	DESCRIPTION

VESTING TENTATIVE MAP FOR NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

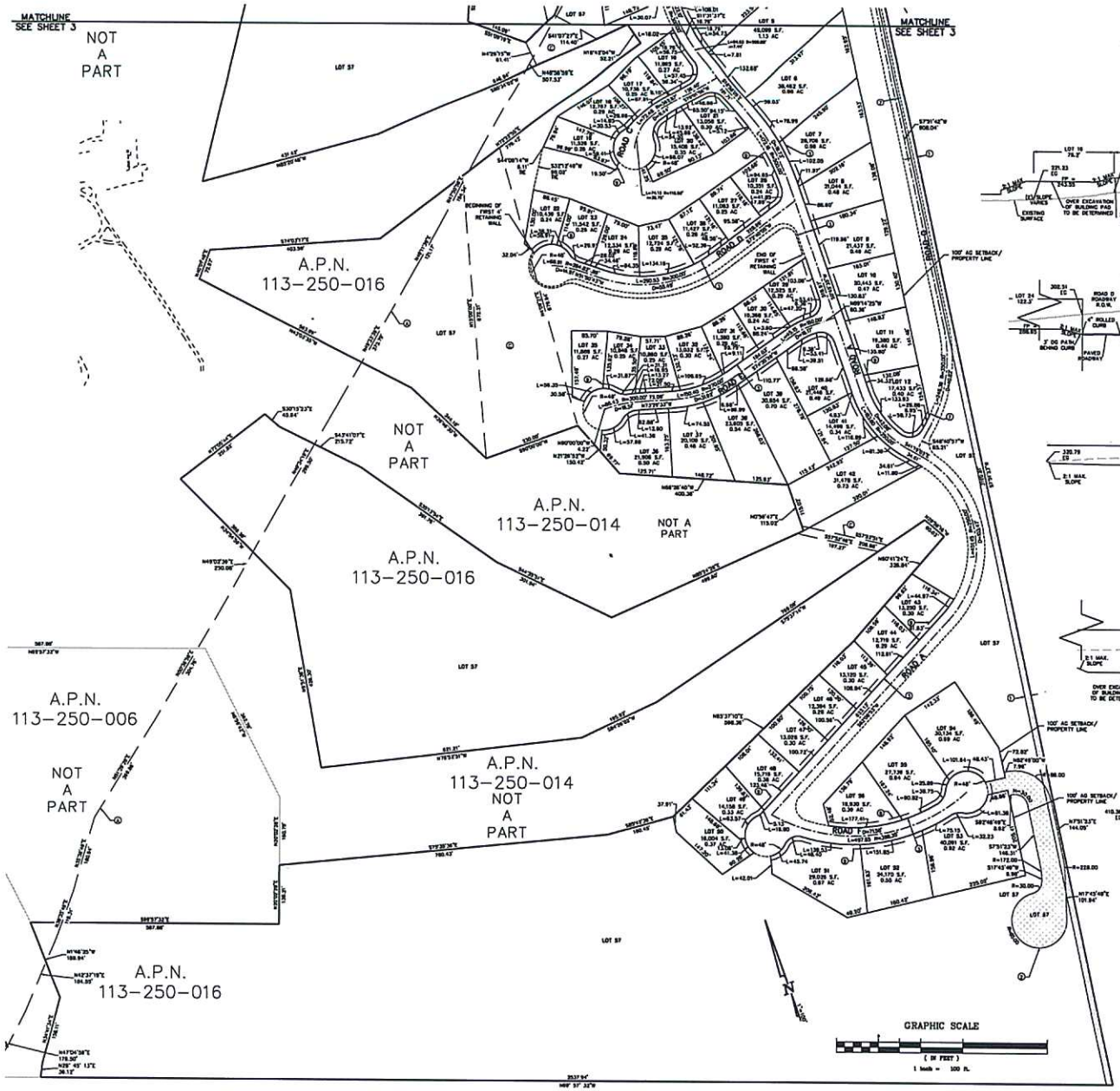
KENNY L. FARGEN L.S. 4387 DATE

SCALE: AS SHOWN

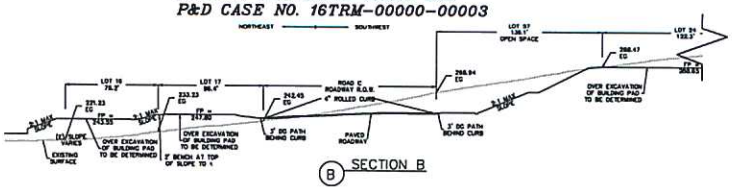
SHEET 1 OF 4

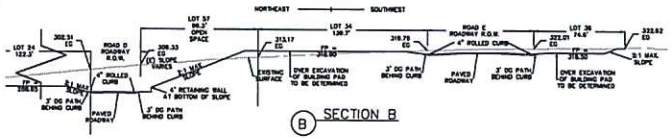
NEIGHBORHOODS OF HIDDEN CANYON

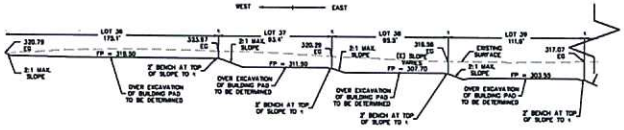
TRACT 14,822
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00003

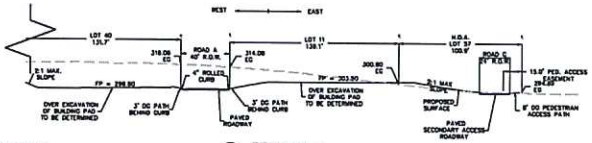


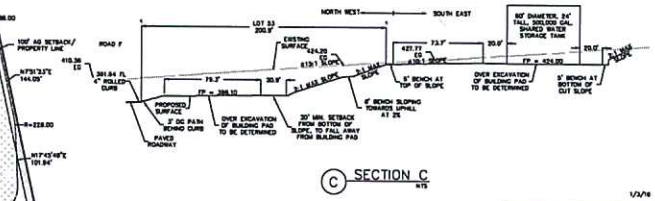
PROJECT MAP











1/3/16

Fergusson Surveying & Civil
3834 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-0777
FAX: 805-934-3448
DATE: JANUARY 2016

BETHEL engineering
2924 Airport Dr. Santa Maria,
California 93455 (805) 934-3767

REGISTERED LAND SURVEYOR REMY L. FARGEN L.S. 4597 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEE W. BETHEL LIC NO. 39997 CIVIL ENGINEER STATE OF CALIFORNIA

DESIGNED BY:	R.H.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

VESTING TENTATIVE MAP FOR NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

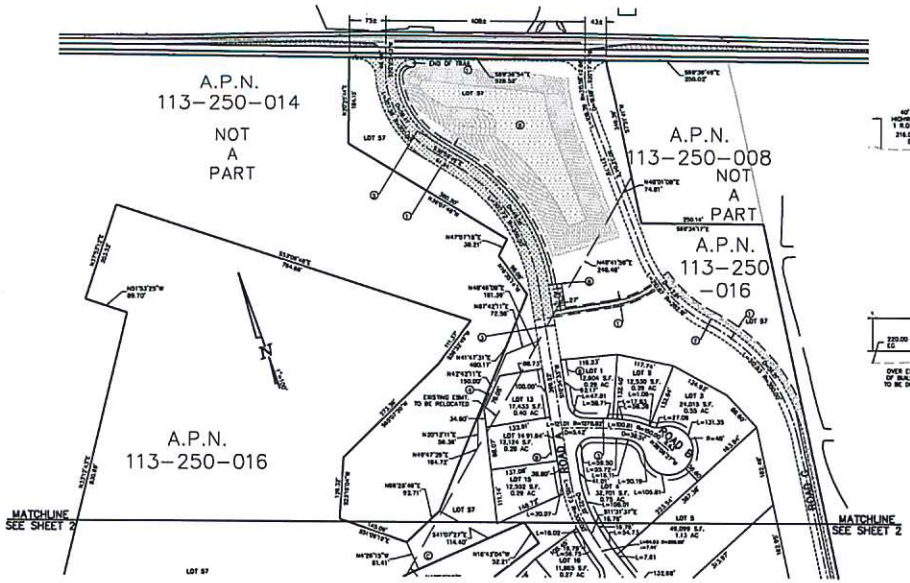
REMY L. FARGEN L.S. 4597 DATE

SCALE: AS SHOWN

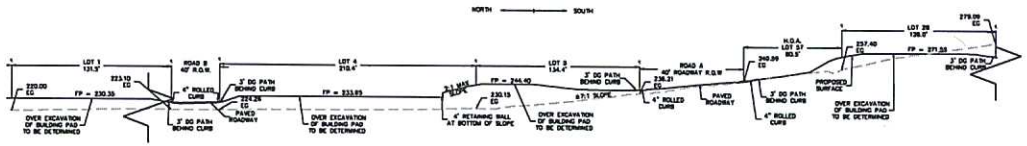
SHEET # OF #

NEIGHBORHOODS OF HIDDEN CANYON

TRACT 14,822
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00003



E SECTION E



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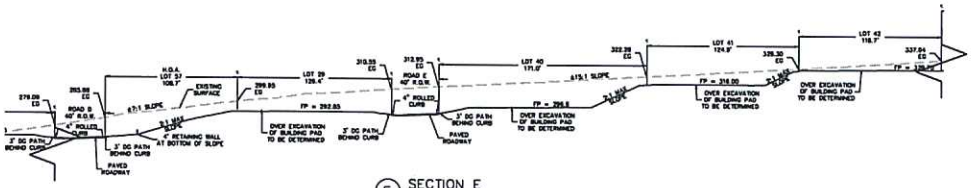

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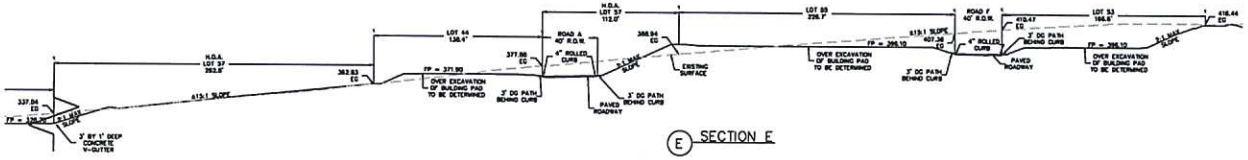
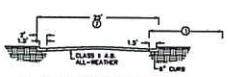
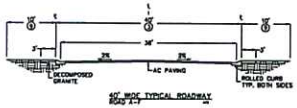


E SECTION E

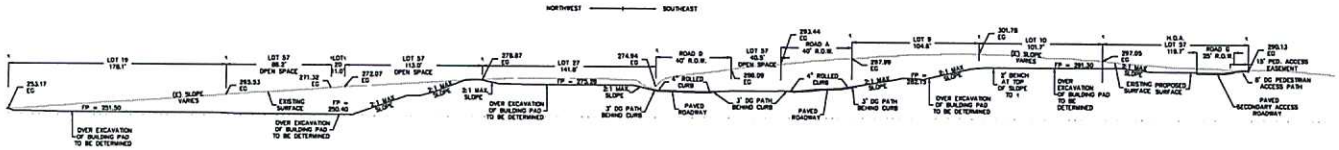
40' WIDE HIGHWAY 1 TYPICAL ROADWAY



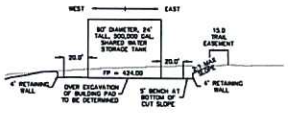
24' WIDE SECONDARY/EMERGENCY ACCESS ROAD
ROAD D



40' WIDE TYPICAL ROADWAY
ROAD A-G



D SECTION D



F SECTION F

1/3/16

Fangen Surveying & Oil Co.
2634 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-3727
FAX: 805-934-3498
DATE: JANUARY 2016

BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-5767

LICENSED LAND SURVEYOR — KENNY L. FARGEN — L.S. 4567 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — RUSSELL E. BETHEL — LIC. NO. 39997 — CIVIL ENGINEER — STATE OF CALIFORNIA

DESIGNED BY:	R.H.
CHECKED BY:	P.J.C.
REVISIONS	
DATE	DESCRIPTION

VESTING TENTATIVE MAP FOR NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

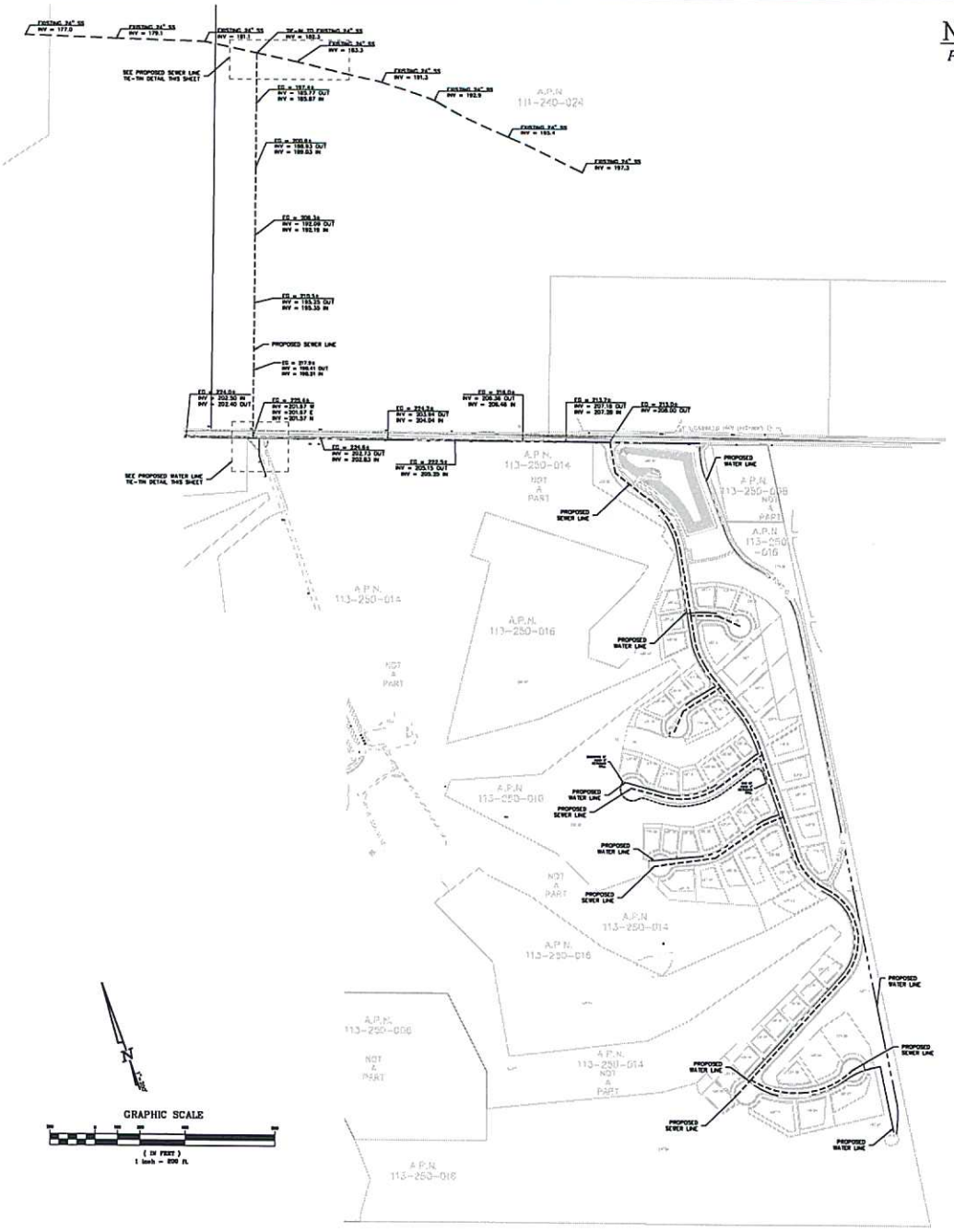
KENNY L. FARGEN L.S. 4567 — DATE

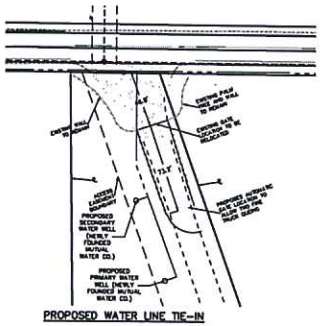
SCALE: AS SHOWN

SHEET 3 OF 4

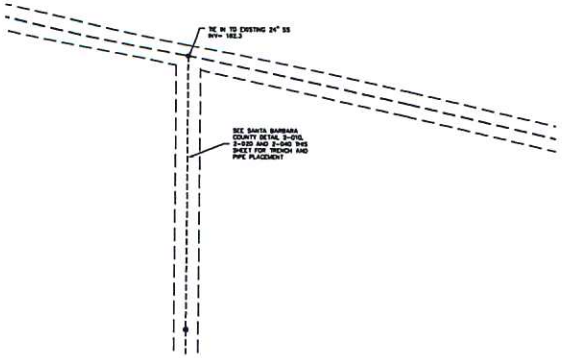
NEIGHBORHOODS OF HIDDEN CANYON

PROPOSED SEWER AND WATER LINE





PROPOSED WATER LINE TIE-IN
NTS

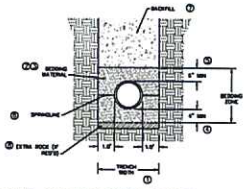


PROPOSED SEWER LINE TIE-IN
NTS

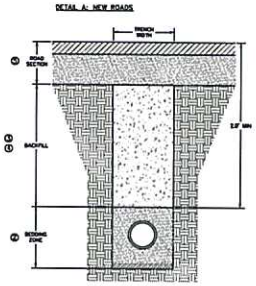
1. CAL-OSHA AND OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH REQUIREMENTS SHALL BE MET FOR ALL TRENCH OPERATIONS
2. TRENCHES SHALL BE EXCAVATED DEEP ENOUGH TO ASSURE AT LEAST 2.0' OF COVER FOR THE UNDERGROUND FACILITY. OVER-EXCAVATION MAY BE REQUIRED TO ACHIEVE A STABLE, EVEN FLOOR IN THE TRENCH, AND EXTRA BEDDING MATERIAL PLACED TO PROVIDE A SUITABLE FOUNDATION FOR THE FACILITY.
3. ALL TRENCH BEDDING MATERIAL SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 19-3.
4. NO PONDING, JETTING, OR FLOODING IS PERMITTED UNDER EXISTING ROADS. IN OTHER AREAS, SUCH METHODS MUST BE APPROVED BY THE COUNTY ENGINEER.
5. ALL UTILITIES SHALL BE INSPECTED, TESTED, AND VERIFIED TO THE COUNTY ENGINEER PRIOR TO PLACEMENT OF TRENCH BACKFILL. STREET IMPROVEMENT PLANS SHALL BE SIGNED BY THE UTILITY COMPANIES AND THE COUNTY FIRE DEPARTMENT.
6. IF THE TRENCH CROSSES UNDER AN EXISTING UTILITY, THE CONTRACTOR MUST PROVIDE ADEQUATE SUPPORT AND PROTECTION FOR THE EXISTING UTILITY. BACKFILLING MUST INCLUDE PREPARING A NEW BED FOR THE EXISTING UTILITY AND PERFORMING COMPACTION TESTS.
7. MASSIVE DENSITY AND OPTIMUM MOISTURE TESTS MUST BE MADE FOR ALL BACKFILL AND BEDDING MATERIALS EXCEPT CEMENT SLURRY OR 3/4" WASHED CRUSHED ROCK.
8. FOR TRENCHES LESS THAN 5.0' DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, ONE COMPACTION TEST SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
9. FOR TRENCHES 5.0' OR MORE DEEP MEASURED FROM FINISHED GRADE TO FLOOR, TOP COMPACTION TESTS SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
10. EVERY LATERAL UTILITY TRENCH SHALL BE TESTED FOR COMPACTION AT THE SAME SCHEDULE AS THE MAIN TRENCH.
11. PAVING MATERIAL SHALL BE ASPHALTIC CONCRETE PER 1-010, NOTE 18. IT SHALL BE 6" THICK AFTER COMPACTION.
12. ASPHALT PAVING SHALL BE RESTORED WITH A "FOG" SEAL IN CONFORMANCE WITH COUNTY SPECIFICATIONS FOR ITS "FOG" SEAL PROGRAM OF CURRENT DATE. FOG SEALING SHALL EITHER BE:
    A. BONDED FOR AND COMPLETED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM THE START OF THE WARRANTY PERIOD, OR
    B. A PAYMENT SHALL BE MADE TO THE COUNTY BASED ON THE COUNTY'S COST TO PERFORM THE FOG SEAL PLUS 15% FOR ADMINISTRATION AND INSPECTION. PAYMENT SHALL BE MADE PRIOR TO THE ENCROACHMENT PERMIT ISSUANCE.
13. WHERE ASPHALT IS SHOWING SIGNS OF DAMAGE OR WEAR, THE COUNTY ENGINEER MAY REQUIRE A TYPE II SLURRY SEAL INSTEAD OF "FOG" SEAL

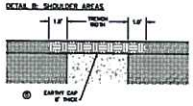
SANTA BARBARA COUNTY STANDARD :
2-010 GENERAL TRENCH NOTES

1. TRENCH WIDTH SHALL BE SUFFICIENT TO FULLY ENCLOSE THE PIPE AND ALLOW COMPACTION TESTING AT THE SPRING LINE.
2. BEDDING MATERIAL FOR UTILITY TRENCHES SHALL MEET THE STANDARDS OF THE UTILITY COMPANY INVOLVED.
3. BEDDING MATERIAL FOR HDPE, RCP AND CMP SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATION AND SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. FILL MUST BE PLACED IN LIFTS NO LARGER THAN 8" TO FACILITATE COMPACTION. FOR CMP PIPE, THE BEDDING MATERIAL SHALL BE PLACED IN 4" LIFTS.
4. THE THICKNESS OF THE LAYER OF BEDDING UNDER THE PIPE SHALL BE AT LEAST 4" OR 1/8 OF THE PIPE DIAMETER, WHICHEVER IS LARGER.
5. BEDDING MATERIAL SHALL BE COMPLETELY COVER THE PIPE TO MINIMUM HEIGHT OF 6" AFTER COMPACTION.
6. CARE MUST BE TAKEN TO PLACE THE BEDDING EVENLY UNDER THE LENGTH OF THE PIPE TO ASSURE ADEQUATE SUPPORT. COMPACTION TESTING IS REQUIRED AT THE SPRINGLINE OF THE PIPE WHICH SHALL BE USED AS A BENCHMARK.
7. BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD 2-030 AND 2-040.
8. SEE NOTE 2 ON 1-010



SANTA BARBARA COUNTY STANDARD:
2-020 PIPE BEDDING DETAILS NTS





1. ALL TRENCH WORK FOR NEW ROADS AND FOR SHOULDERS WITHIN 3.0' OF PAVEMENT SHALL COMPLY WITH THIS STANDARD.
2. BEDDING DETAILS SHALL COMPLY WITH SBCO STD. 2-020.
3. TRENCH BACKFILL SHALL BE NATIVE, IMPORT, OR A MIXTURE OF THE TWO, FREE OF ORGANIC MATTER AND DEBRIS, AND WITH NO ROCKS OR CLUMPS LARGER THAN 3" WITH A SAND EQUIVALENT OF 20 OR GREATER.
4. BACKFILL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
5. REFER TO SECTION 9 FOR THICKNESS OF THE ROAD SECTION.
6. EARTHY MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD. 2-020.

SANTA BARBARA COUNTY STANDARD:
2-040 TRENCHES FOR NEW ROADS NTS

1/3/18

Tarpey Surveying Corp.
3534 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-0727
FAX: 805-934-3418
DATE: JANUARY 2018

BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-0767

LICENSED LAND SURVEYOR — REMY L. FARDER — L.S. 4587 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — RUSSELL J. BETHEL — LIC NO. 55557 — CIVIL ENGINEER — STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	R.J.B.
REVISIONS	
DATE	DESCRIPTION

PROPOSED SEWER AND WATER LINES FOR NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

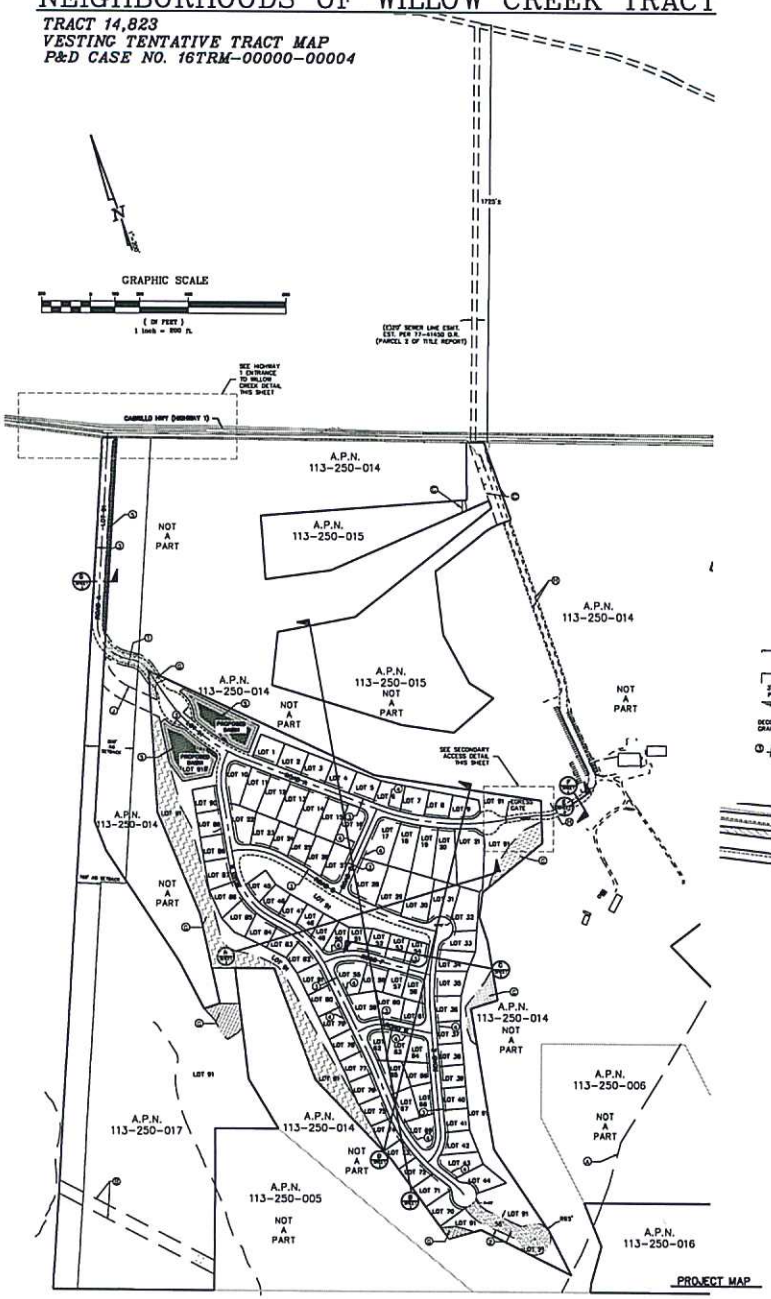
REMY L. FARDER — L.S. 4587 — DATE

SCALE: AS SHOWN

SHEET 4 OF 4

NEIGHBORHOODS OF WILLOW CREEK TRACT

TRACT 14,823
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00004



PROJECT MAP

LEGEND

PROJECT BOUNDARY	
CENTERLINE	
PROPERTY/LOT LINE	
CURB LINE	
EASEMENT LINE	
EXIST. EASEMENT LINE	
ABANDONED OIL WELL AND NO BUILD EASEMENT	

ABBREVIATIONS	
ADJ. ADJACENT	T.C.
FLOWLINE	F.L.
EDGE OF PAVEMENT ASPHALT	E.P.
CONCRETE	A.C.
HIGH POINT	H.P.
LOW POINT	L.P.
FINISHED GRADE	F.G.
GRADE BREAK	G.B.
RIGHT OF WAY	R/W, R.O.W
SANITARY SEWER	S.S.
STREET	ST.
SQUARE FEET	SQFT
EXISTING	EX
PROPERTY LINE	PL OR ℄
DECOMPOSED GRANITE	D.G.
PUBLIC UTILITY EASEMENT	P.U.E.
PRELIMINARY TITLE REPORT	PTR
PEDESTRIAN ACCESS EASEMENT	PED

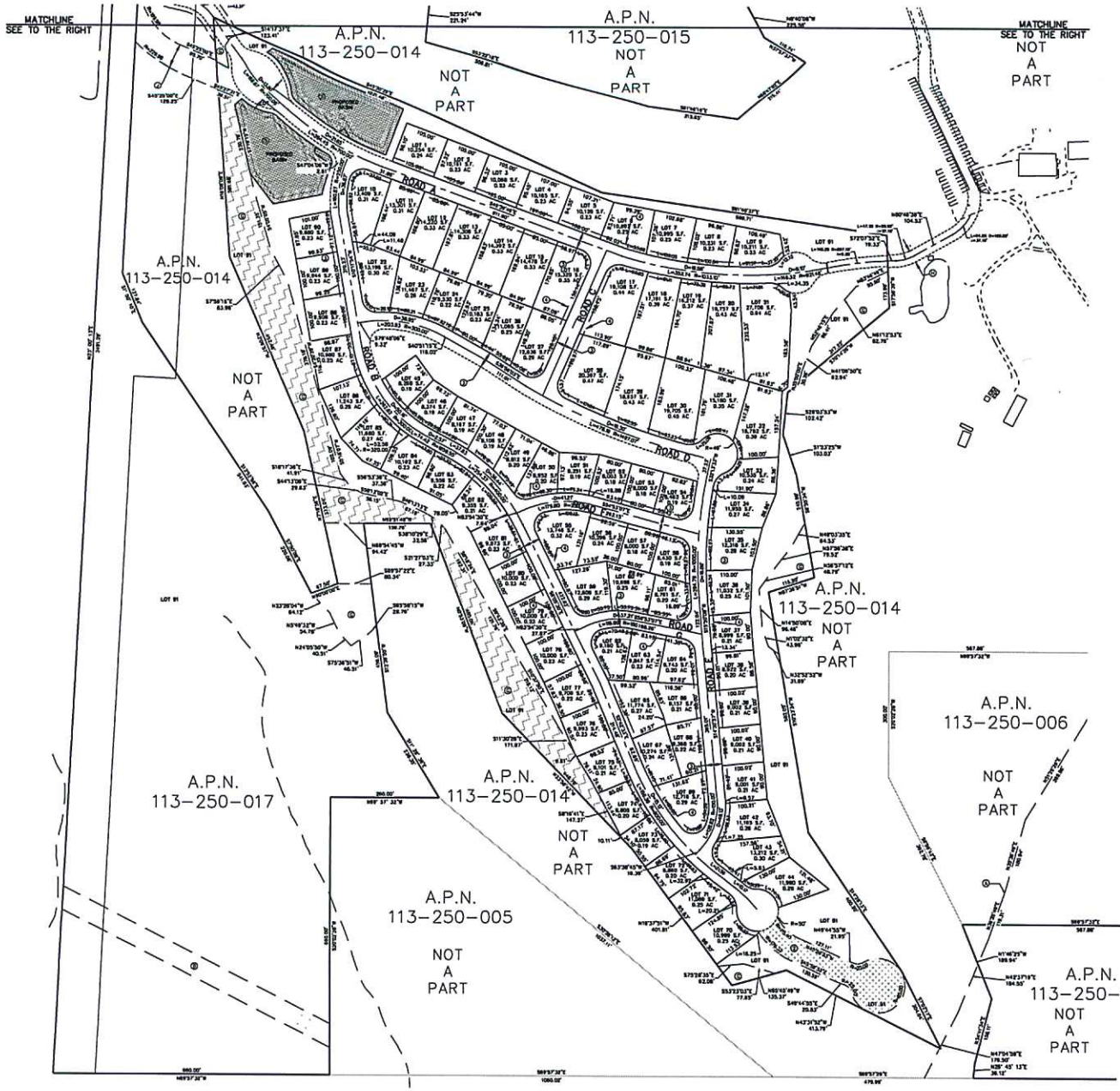
PROPOSED PROJECT INFORMATION

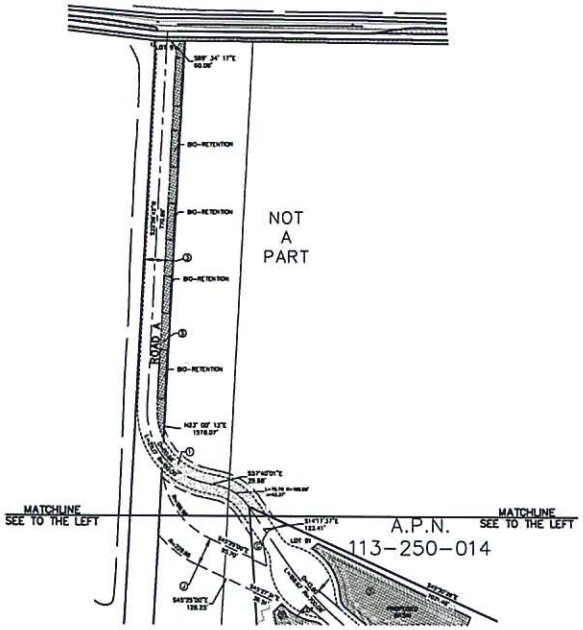
NUMBER OF LOTS: 91 PROPOSED
ZONING:

LOT NO.	AREA (SQ.FT.)	ZONING
1	15,382	PRD
2	10,153	PRD
3	10,153	PRD
4	10,153	PRD
5	10,153	PRD
6	10,153	PRD

NEIGHBORHOODS OF WILLOW CREEK

TRACT 14,823
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00004





GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

10/3/17

Fergusson Surveying & Geo. Inc.
3634 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-0727
FAX: 805-934-3498
DATE: OCTOBER 2017

BETHEL engineering
2624 Airport Dr. Santa Maria,
California 93455 (805) 934-3767

LICENSED LAND SURVEYOR
HENRY L. FARGEN
L.S. 4987
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. BETHEL
LIC NO. 39567
CIVIL ENGINEER
STATE OF CALIFORNIA

DESIGNED BY:	D.K.
CHECKED BY:	R.J.G.
REVISIONS	
DATE	DESCRIPTION

VESTING TENTATIVE MAP FOR
NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

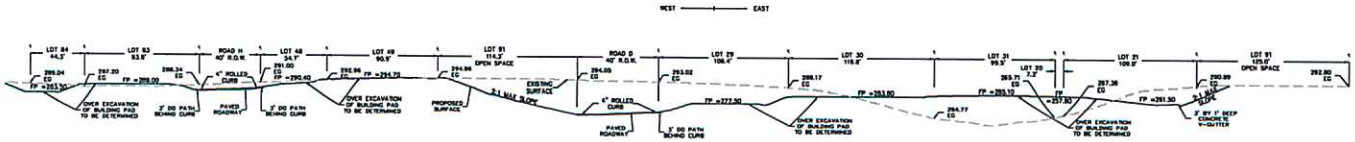
HENRY L. FARGEN L.S. 4987 DATE

SCALE: AS SHOWN

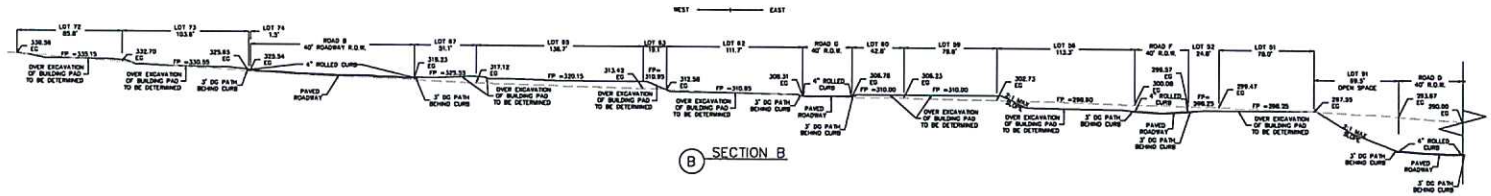
SHEET 2 OF 4

NEIGHBORHOODS OF WILLOW CREEK

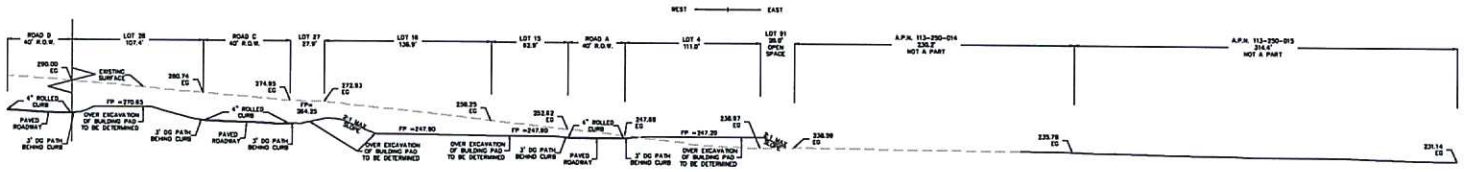
TRACT 14,823
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00004



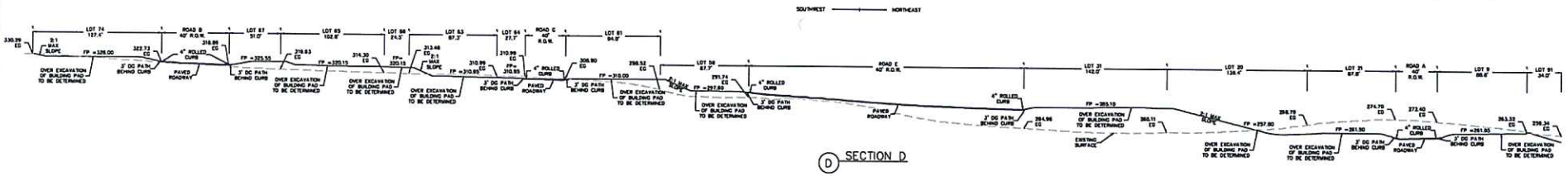
(A) SECTION A



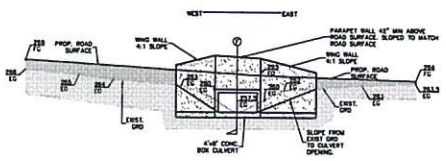
(B) SECTION B



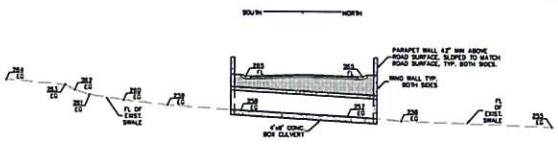
(B) SECTION B



(D) SECTION D



(E) SECTION E



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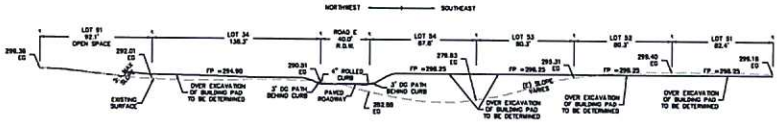
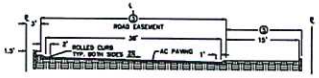
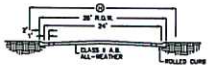


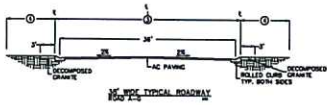
(C) SECTION C



(C) 36' WIDE ENTRANCE ROADWAY
ROAD A



24' WIDE SECONDARY/EMERGENCY ACCESS ROAD
ROAD B



36' WIDE TYPICAL ROADWAY
ROAD A-G

40' WIDE HIGHWAY 1 TYPICAL ROADWAY

10/3/17

Fergusen Surveying & Civil
3534 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-3727
FAX: 805-934-3418
DATE: OCTOBER 2017

BETHEL engineering
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LICENSED LAND SURVEYOR
KENNY L. FARGEN
L.S. 4097
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
RUSSELL A. BETHEL
LIC NO. 39997
CIVIL ENGINEER
STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

SECTIONS
FOR NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

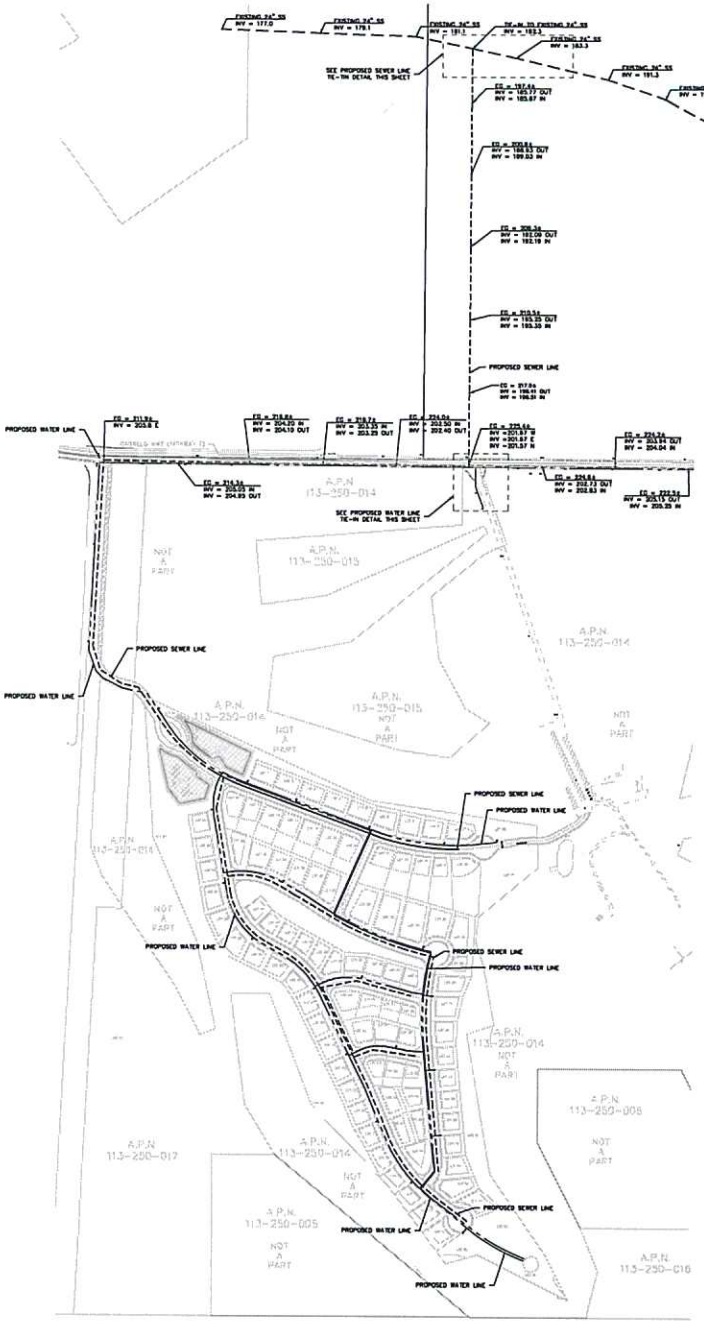
KENNY L. FARGEN L.S. 4097 DATE

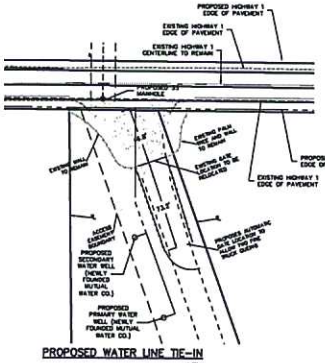
SCALE: AS SHOWN

SHEET 3 OF 4

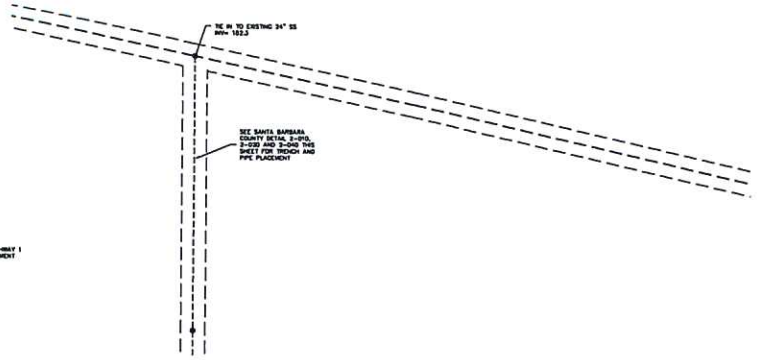
NEIGHBORHOODS OF WILLOW CREEK

PROPOSED SEWER AND WATER LINE





PROPOSED WATER LINE TIE-IN
NTS

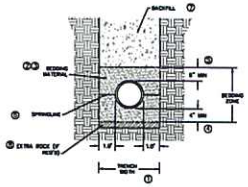


PROPOSED SEWER LINE TIE-IN
NTS

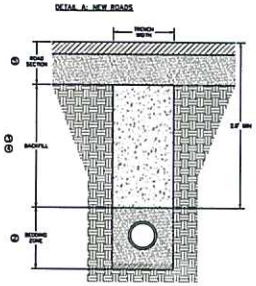
1. CAL-OSHA AND OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH REQUIREMENTS SHALL BE MET FOR ALL TRENCH OPERATIONS
2. TRENCHES SHALL BE EXCAVATED DEEP ENOUGH TO ASSURE AT LEAST 2.0' OF COVER FOR THE UNDERGROUND FACILITY. OVER-EXCAVATION MAY BE REQUIRED TO ACHIEVE A STABLE, EVEN FLOOR IN THE TRENCH, AND EXTRA BEDDING MATERIAL PLACED TO PROVIDE A SUITABLE FOUNDATION FOR THE FACILITY.
2. ALL TRENCH BEDDING MATERIAL SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 19-3.
4. NO PONDING, JETTING, OR FLOODING IS PERMITTED UNDER EXISTING ROADS, IN OTHER AREAS, SUCH METHODS MAY BE ALLOWED BY THE COUNTY ENGINEER.
5. ALL UTILITIES SHALL BE INSPECTED, TESTED, AND VERIFIED TO THE COUNTY ENGINEER PRIOR TO PLACEMENT OF TRENCH BACKFILL. STREET IMPROVEMENT PLANS SHALL BE SIGNED BY THE UTILITY COMPANIES AND THE COUNTY FIRE DEPARTMENT.
6. WHERE A TRENCH CROSSES UNDER AN EXISTING UTILITY, THE CONTRACTOR MUST PROVIDE ADEQUATE SUPPORT AND AVOID ANY DISTURBANCE OF THE UTILITY. BACKFILLING MUST INCLUDE PREPARING A NEW BED FOR THE EXISTING UTILITY AND PERFORMING COMPACTION TESTS.
7. MAXIMUM DENSITY AND OPTIMUM MOISTURE TESTS MUST BE MADE FOR ALL BACKFILL AND BEDDING MATERIALS EXCEPT CEMENT SLURRY OR 3/4" WASHED CRUSHED ROCK.
8. FOR TRENCHES LESS THAN 8.0' DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, ONE COMPACTION TEST SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
8. FOR TRENCHES 8.0' OR MORE DEEP MEASURED FROM FINISHED GRADE TO FLOOR, TOW COMPACTION TESTS SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
10. EVERY LATERAL UTILITY TRENCH SHALL BE TESTED FOR COMPACTION AT THE SAME SCHEDULE AS THE MAIN TRENCH.
11. PAVING MATERIAL SHALL BE ASPHALTIC CONCRETE PER 1-010, NOTE 16. IT SHALL BE 6" THICK AFTER COMPACTION.
12. ASPHALT PAVING SHALL BE RESTORED WITH A "FOG" SEAL IN CONFORMANCE WITH COUNTY SPECIFICATIONS FOR ITS "FOG" SEAL PROGRAM IF CURRENT DATE. FOG SEALING SHALL EITHER BE :
    A. BONDED FOR AND COMPLETED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM THE START OF THE WARRANTY PERIOD, OR
    B. A PAYMENT SHALL BE MADE TO THE COUNTY BASED ON THE COUNTY'S COST TO PERFORM THE FOG SEAL PLUS 15% FOR ADMINISTRATION AND INSPECTION. PAYMENT SHALL BE MADE PRIOR TO THE ENCROACHMENT PERMIT ISSUANCE.
13. WHERE ASPHALT IS SHOWING SIGNS OF DAMAGE OR WEAR, THE COUNTY ENGINEER MAY REQUIRE A TYPE II SLURRY SEAL INSTEAD OF "FOG" SEAL.

SANTA BARBARA COUNTY STANDARD :
2-010 GENERAL TRENCH NOTES

1. TRENCH WIDTH SHALL BE SUFFICIENT TO FULLY ENCLOSE THE PIPE AND ALLOW COMPACTION TESTING AT THE SPRING LINE.
2. BEDDING MATERIAL FOR UTILITY TRENCHES SHALL MEET THE STANDARDS OF THE UTILITY COMPANY INVOLVED.
3. BEDDING MATERIAL FOR HDPE, ROP AND CMP SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATION AND SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. FILL MUST BE PLACED IN LIFTS NO LARGER THAN 6" TO FACILITATE COMPACTION. FOR CMP PIPE, THE BEDDING MATERIAL SHALL BE TESTED FOR MEDIUM PH.
4. THE THICKNESS OF THE LAYER OF BEDDING UNDER THE PIPE SHALL BE AT LEAST 4" OR 1/8 OF THE PIPE DIAMETER, WHICHEVER IS LARGER.
5. BEDDING MATERIAL SHALL BE COMPLETELY COVER THE PIPE TO MINIMUM HEIGHT OF 6" AFTER COMPACTION.
6. CARE MUST BE TAKEN TO PLACE THE BEDDING EVENLY UNDER THE LENGTH OF THE PIPE TO ASSURE ADEQUATE SUPPORT. COMPACTION TESTING IS REQUIRED AT THE SPRINGLINE OF THE PIPE WHEN SAND IS USED AS BEDDING MATERIAL.
7. BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD 3-030 AND 3-040
8. SEE NOTE 2 ON 1-010

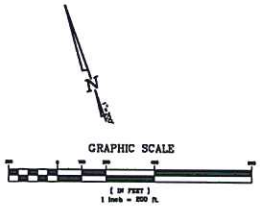


SANTA BARBARA COUNTY STANDARD:
2-020 PIPE BEDDING DETAILS NTS



1. ALL TRENCH WORK FOR NEW ROADS AND FOR SHOULDERS WITHIN 2.0' OF PAVEMENT SHALL COMPLY WITH THIS STANDARD.
2. BEDDING DETAILS SHALL COMPLY WITH SBCO STD. 2-020.
3. TRENCH BACKFILL SHALL BE NATIVE, IMPORT, OR A MIXTURE OF THE TWO, FREE OF ORGANIC MATTER AND DEBRIS, AND WITH NO ROCKS OR CLUMPS LARGER THAN 3" WITH A SAND EQUIVALENT VALUE OF 20 OR GREATER.
4. BACKFILL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
5. REFER TO SECTION 8 FOR THICKNESS OF THE ROAD SECTION.
6. EARTHY MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD. 2-030.

SANTA BARBARA COUNTY STANDARD:
2-040 TRENCHES FOR NEW ROADS NTS



10/3/17

Fergusson Surveying Office
2624 AIRPARK DRIVE
SANTA MARIA, CA 93455
PHONE: 805-934-0727
FAX: 805-934-3498
DATE: OCTOBER 2017

BETHEL engineering
2624 Airport Dr. Santa Maria,
California 93455 (805) 934-3767

LICENSED LAND SURVEYOR KENNY L. FARGEN L.S. 4997 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER RUSSELL A. GARRETT LIC NO. 39597 CIVIL ENGINEER STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	R.J.G.
REVISIONS	
DATE	DESCRIPTION

PROPOSED SEWER AND WATERLINES FOR NEIGHBORHOODS OF WILLOW CREEK

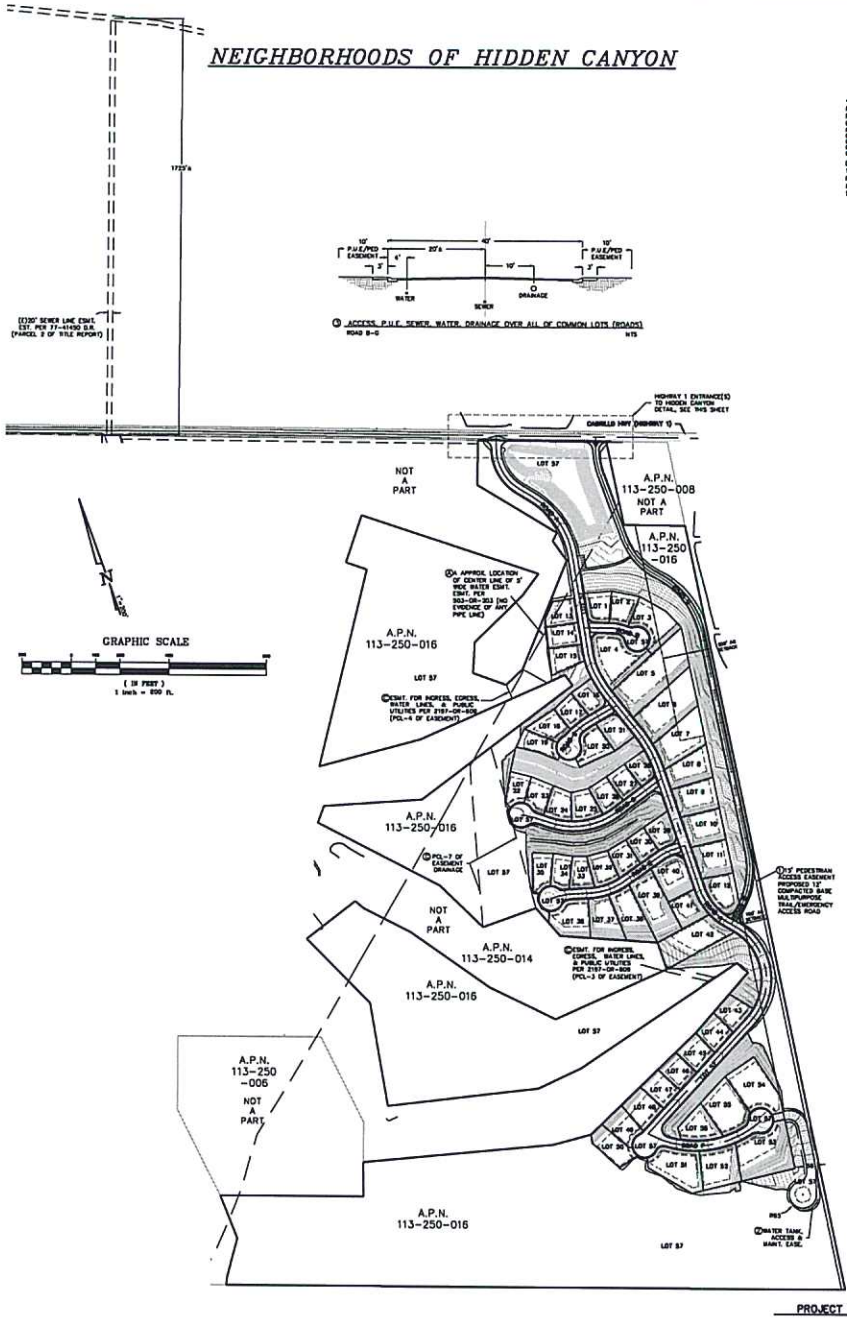
COUNTY OF SANTA BARBARA, CALIFORNIA

KENNY L. FARGEN L.S. 4997 DATE

SCALE: AS SHOWN

SHEET 4 OF 4

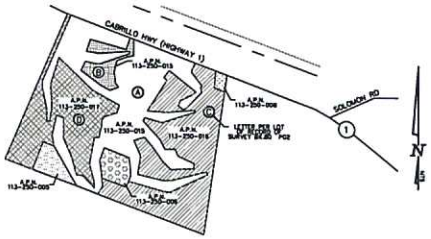
NEIGHBORHOODS OF HIDDEN CANYON



PROJECT MAP

LEGEND

FUTURE CONST.
PROJECT BOUNDARY
CENTERLINE
PROPERTY LINE
LOT LINE
EXIST. CURB LINE
EASEMENT LINE
BUILDING SETBACKS
E.P./I.P OF GUTTER
TOP OF BANK (TOB)
RETAINING WALL
PROPOSED SLOPES
STREET LIGHT



RANCHO PUNTA DE LA LAGUNA (PARCEL MAP PER TITLE REPORT)
NTS

PROJECT INFORMATION

ASSESSOR'S PARCEL NUMBER:	113-250-016
EXISTING ZONING:	PRD
NUMBER OF LOTS:	57
OPEN SPACE:	LOT 57
GROSS AREA:	(106.73 ACRES) 4,648,339 S.F.
AVERAGE LOT SIZE:	10,000 S.F.
ZONING:	PRD

UTILITIES

WATER:	A NEWLY FORMED MUTUAL WATER CO.
SEWER:	LAGUNA SANITATION
ELECTRICITY:	SCE
GAS:	SOUTH GAS CO.
TELEPHONE:	VERIZON
CABLE TV:	COMCAST CABLE

LEGAL DESCRIPTION

HIDDEN CANYON NEIGHBORHOOD (A.P.N. 113-250-016) THAT PORTION OF THE RANCHO PUNTA DE LA LAGUNA IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, SHOWN AS PARCEL C OF THE MAP FILED IN BOOK 80, PAGE 2 OF RECORD SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

BOUNDARY INFORMATION

BOUNDARY SHOWN HEREON IS BASED UPON THE MAP FILED IN BOOK 80, PAGE 2 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

EXISTING OFFSITE EASEMENT

(PARCEL 2 OF TITLE REPORT)

A 20' WIDE EASEMENT FOR SEWER LINE PURPOSES.

EXISTING ON-SITE EASEMENTS

2 (A) 5' WIDE INGRESS, EGRESS, WATER PIPES & INCIDENTAL PURPOSES.

GRANTED TO: RICHFIELD OIL CORP
RECORDED: SEPT. 13, 1940
INST. NUMBER: 7428, BOOK 303, PAGE 203 OF OFFICIAL RECORDS
(VARIABLE WIDTH)

4 (C) EASEMENT FOR INGRESS, EGRESS, WATER LINES, PUBLIC UTILITIES, ROAD PURPOSES, DRAINAGE AND INCIDENTAL PURPOSES.

GRANTED TO: EDMOND H. BURNSIAND FLORENCE H. BURNS.
RECORDED: JULY 16, 1987
INST. NUMBER: 2008E3, BOOK 2197, PAGE 809 OF OFFICIAL RECORDS
POL-3, POL-4, POL-7 (VARIABLE WIDTH)

7 (D) PRIVATE ROAD UTILITIES AND PIPELINES AND INCIDENTAL PURPOSES.

GRANTED TO: WESLEY M. MUSICO
RECORDED: SEPT. 17, 1979
INST. NUMBER: 79-13139 OF OFFICIAL RECORDS.
(LOCATION UNDETERMINED)

LOT SIZES

LOT NO.	AREA (SF)	LOT NO.	AREA (SF)	LOT NO.	AREA (SF)
1	13,604	21	13,916	41	15,486
2	13,630	22	10,436	42	21,476
3	14,015	23	13,241	43	13,990
4	22,721	24	12,334	44	13,719
5	14,269	25	12,714	45	14,152
6	36,483	26	11,437	46	13,384
7	26,908	27	11,262	47	13,038
8	21,641	28	10,351	48	13,715
9	21,517	29	13,328	49	14,150
10	16,211	30	13,328	50	14,150
11	16,420	31	11,390	51	21,016
12	14,762	32	10,880	52	20,170
13	14,161	33	10,880	53	20,171
14	13,553	34	11,888	54	27,730
15	11,843	35	21,908	55	15,930
16	10,716	36	23,128	57	4,648,339
17	12,767	37	23,920		
18	11,538	38	20,634		
19	13,406	39	21,218		
20	13,406	40	21,218		

NOTE
- LOT 57 (OPEN SPACE) UNDEVELOPED LAND, DEVELOPED LANDSCAPED AREAS, DEDICATED ROADS, OPEN SPACE MAINTENANCE YARD
- ROADS ARE TO BE PRIVATE & THERE WILL BE PARKING ON BOTH SIDES OF ROAD

SITE STATISTICS

HIDDEN CANYON (A.P.N. 113-250-016)			
LOT 57	MANAGED OPEN SPACE		16.1 AC
	UNDISTURBED OPEN SPACE		38.5 AC
	DEVELOPED AREA	TANKS AND ACCESS ROADS	0.50 AC
		*TOTAL PAVED ROAD SURFACE	7.4 AC
LOT 1-56		TOTAL GROSS PRIVATE LOT AREA	33.8 AC
TOTAL GROSS SITE AREA			106.7 AC

*INCLUDES SIDEWALKS

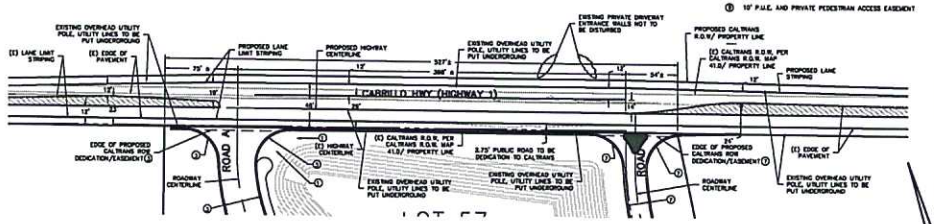
WATER TANK INFORMATION

MAX CAPACITY	200,000 GALLONS
HEIGHT	24 FT
DIAMETER	50 FT
MATERIAL	WELDED STEEL

PROPOSED EASEMENTS

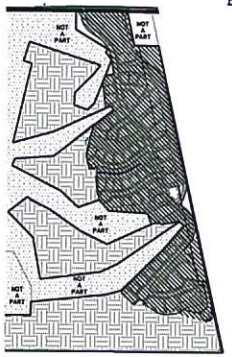
NOTE: SEE RANCHO PUNTA DE LA LAGUNA MAP BK. 80 PG. 2 OF RECORDS OF SURVEYS AS FILED IN THE OFFICE OF THE SANTA BARBARA COUNTY RECORDER FOR REFERENCE

(1) 15' PUBLIC PEDESTRIAN ACCESS/TRAIL EASEMENT.
TO: BE DEDICATED TO SANTA BARBARA COUNTY PARKS DEPT. AS PART OF TRACT MAP
(2) VARYING WIDTH WATER TANK, ACCESS, MAINTENANCE EASEMENT
TO: A NEWLY FORMED MUTUAL WATER CO. AS PART OF TRACT MAP.
(3) VARYING WIDTH PRIVATE ACCESS, P.U.E., PED ACCESS, SEWER, WATER AND DRAINAGE EASEMENT ACROSS LOT 57, SHOWN AS ROADS "A" THROUGH "F"
(4) 5' WATER LINE EASEMENT
TO: RICHFIELD OIL CORP
(5) PUBLIC ACCESS EASEMENT FROM HIGHWAY 1 TO TRAIL STAGING AREA ALONG ROAD A, SEE SHEET 3
(6) VARYING WIDTH PRIVATE DRAINAGE BASIN EASEMENT
(7) PRIVATE SECONDARY/EMERGENCY ACCESS EASEMENT SHOWN AS ROAD "G"
(8) PUBLIC TRAIL STAGING AREA AND TRAIL PARKING EASEMENT
(9) 10' P.U.E. AND PRIVATE PEDESTRIAN ACCESS EASEMENT

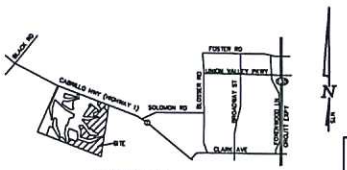


HIGHWAY 1 ENTRANCE(S) TO HIDDEN CANYON
NTS

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.



UNDEVELOPED OPEN SPACE
DEVELOPED AREA



VICINITY MAP

BETHEL engineering
2924 Airport Dr. Santa Maria, California 93455 (805) 934-3767

DESIGNED BY:	G.V.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

DEVELOPMENT PLAN FOR NEIGHBORHOODS OF HIDDEN CANYON

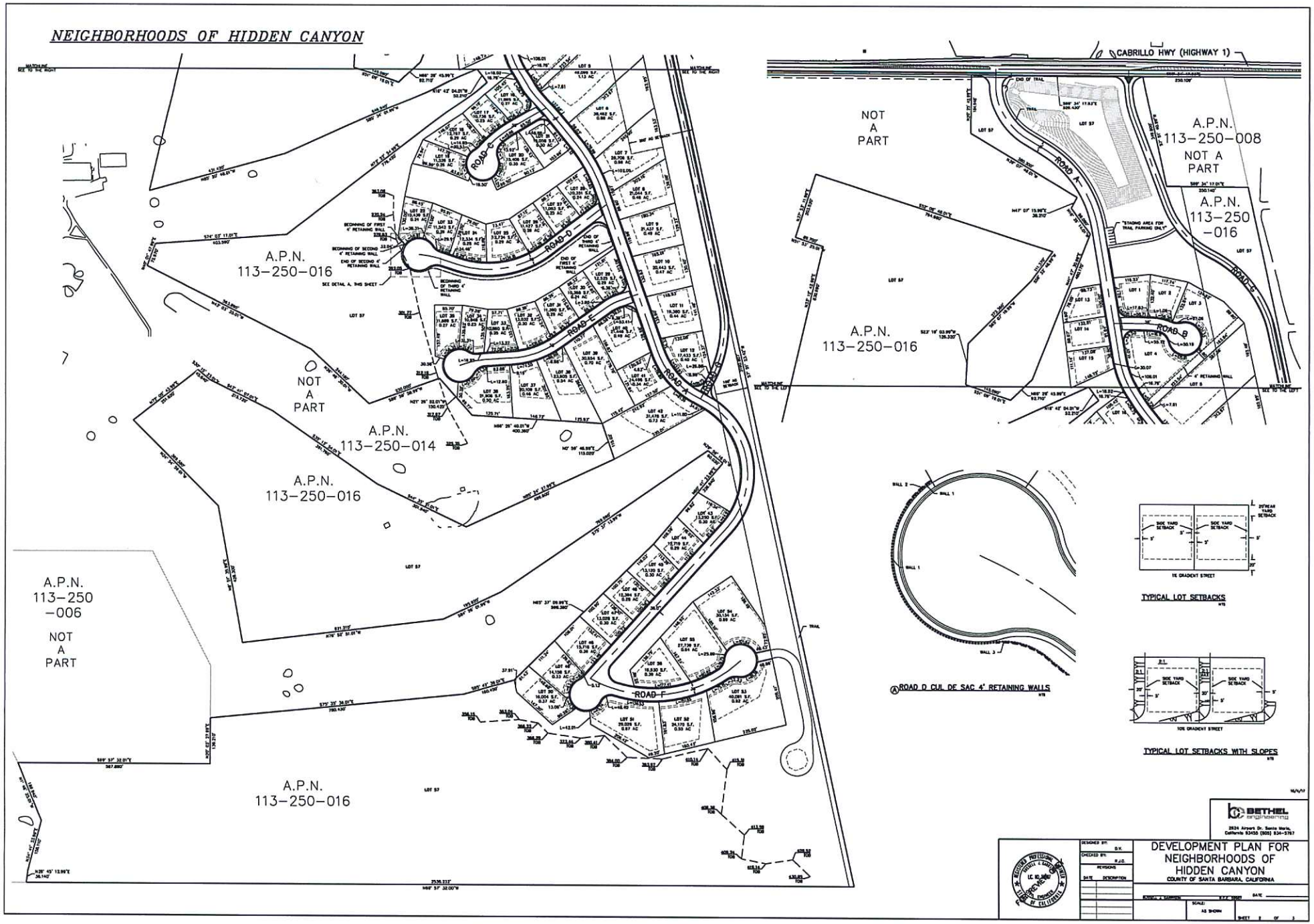
COUNTY OF SANTA BARBARA, CALIFORNIA

SCALE: AS SHOWN

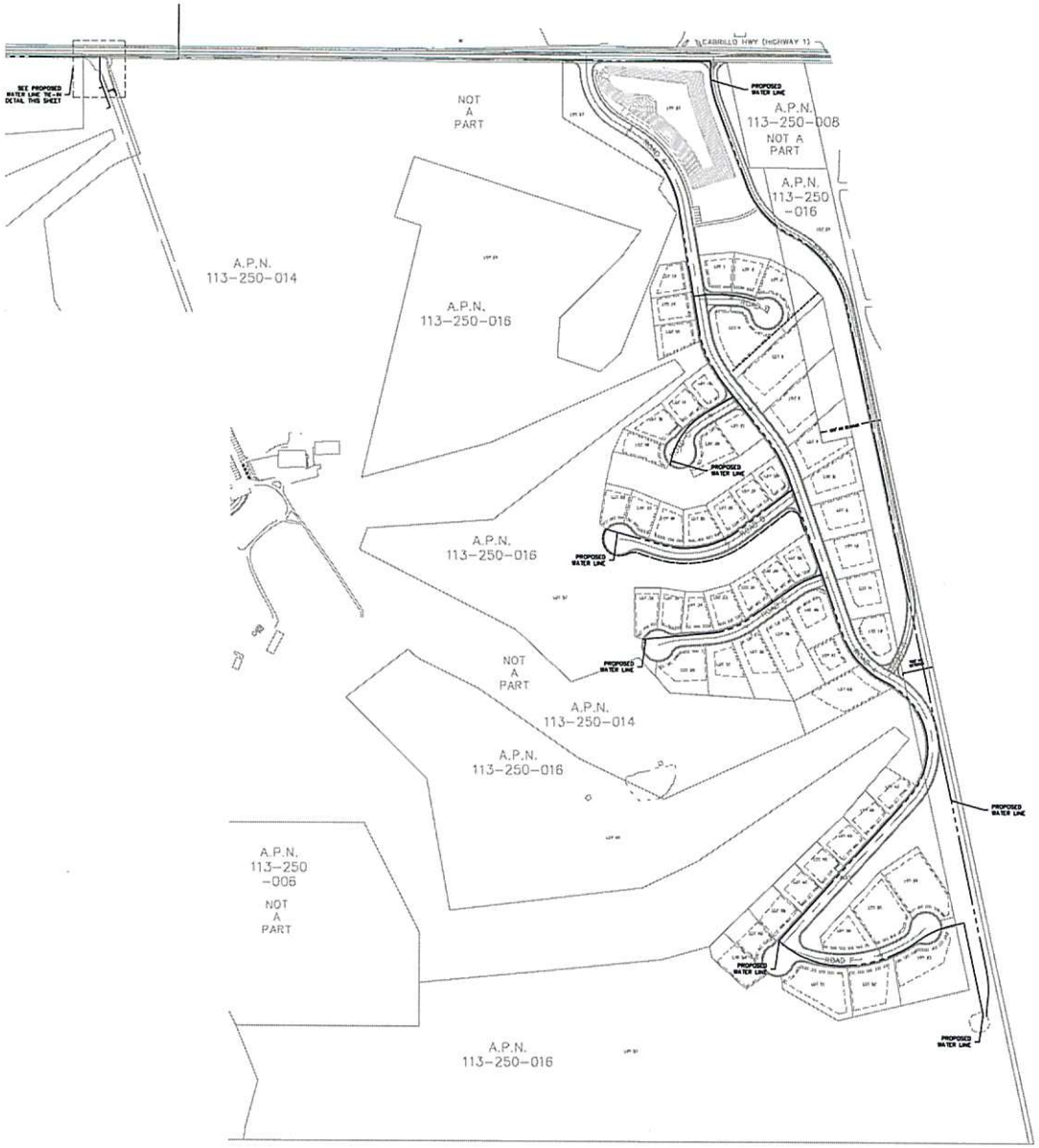
DATE

SHEET 1 OF 3

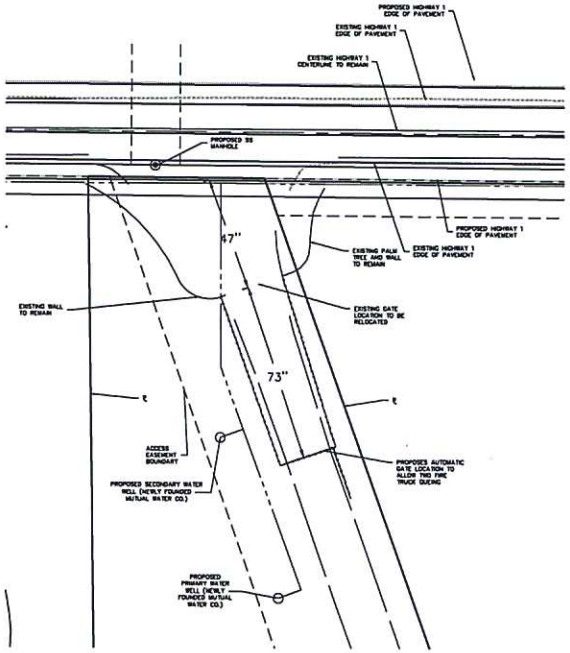
NEIGHBORHOODS OF HIDDEN CANYON



NEIGHBORHOODS OF HIDDEN CANYON



PROJECT MAP



PROPOSED WATER LINE TIE-IN

NTS

10/4/11

BETHEL engineering
2924 Airport Dr. Santa Maria, California 93455 (805) 934-5767

DESIGNED BY:	D.K.
CHECKED BY:	R.J.G.
REVISIONS	
DATE	DESCRIPTION

PROPOSED WATER LINE FOR NEIGHBORHOODS OF HIDDEN CANYON
COUNTY OF SANTA BARBARA, CALIFORNIA

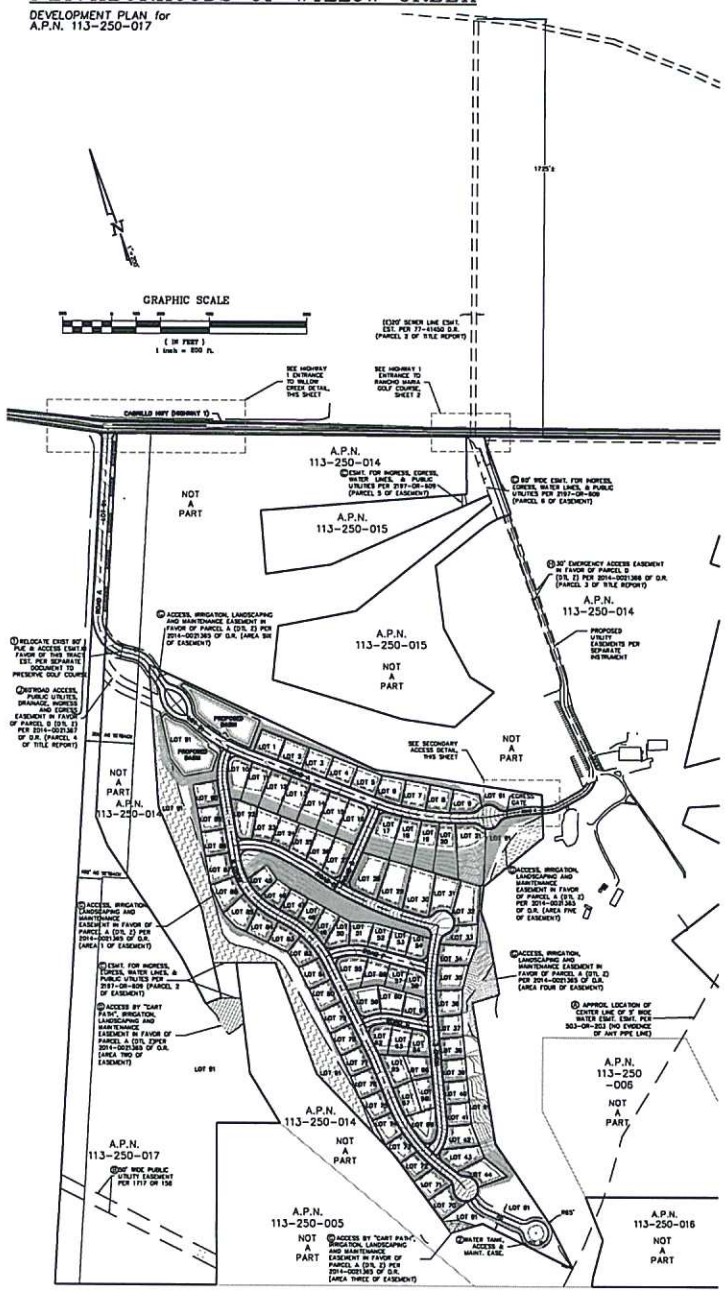
SCALE: AS SHOWN

DATE

SHEET 3 OF 3

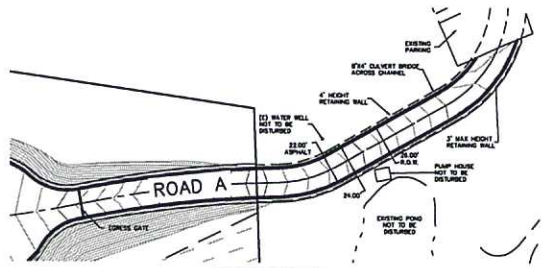
NEIGHBORHOODS OF WILLOW CREEK

DEVELOPMENT PLAN for
A.P.N. 113-250-017

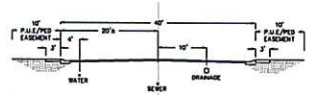


LEGEND

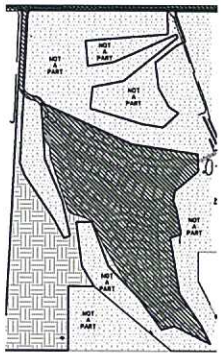
FUTURE CONST.
PROJECT BOUNDARY
CENTERLINE
PROPERTY LINE
CURB LINE
EXIST. CURB LINE
EASEMENT LINE
BUILDING SETBACKS
E.P./LIP OF GUTTER
TOP OF BANK (TOB)
RETAINING WALL
PROPOSED SLOPES
STREET LIGHT

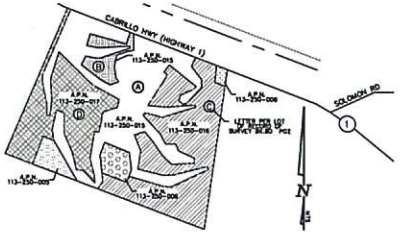


SECONDARY ACCESS
NTS

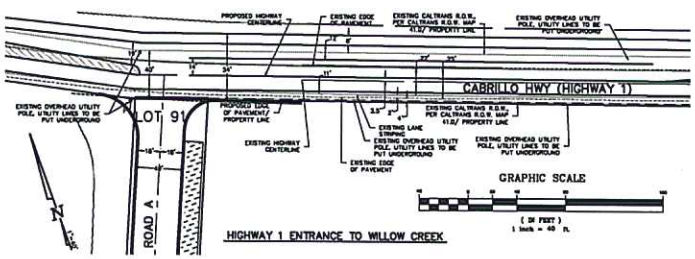


(4) ACCESS, P.U.E., SEWER, WATER, DRAINAGE OVER ALL OF COMMON LOTS (ROADS)
ROAD B-H
NTS





RANCHO PUNTA DE LA LAGUNA (PARCEL MAP PER TITLE REPORT)
NTS



HIGHWAY 1 ENTRANCE TO WILLOW CREEK

PROJECT INFORMATION

ASSESSOR'S PARCEL NUMBER:	113-250-017
EXISTING ZONING:	PRD
NUMBER OF LOTS:	91
OPEN SPACE:	LOT 91
GROSS AREA:	70.02 ACRES 3,048,318 S.F.
AVERAGE LOT SIZE:	11,375 S.F.
ZONING:	PRD

UTILITIES

WATER:	A NEWLY FORMED MUTUAL WATER CO.
SEWER:	LAGUNA SANITATION
ELECTRICITY:	SCE CO.
GAS:	SOCAL GAS CO.
TELEPHONE:	VERIZON
CABLE TV:	COMCAST CABLE

LEGAL DESCRIPTION

WILLOW CREEK NEIGHBORHOOD (A.P.N. 113-250-017)
THAT PORTION OF THE RANCHO PUNTA DE LA LAGUNA IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, SHOWN AS PARCEL D OF THE MAP FILED IN BOOK 90, PAGE 2 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

BOUNDARY INFORMATION

BOUNDARY SHOWN HEREON IS BASED UPON THE MAP FILED IN BOOK 90, PAGE 2 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.

EXISTING OFFSITE EASEMENT

(PARCEL 2 OF TITLE REPORT)

A 20' WIDE EASEMENT FOR SEWER LINE PURPOSES.

EXISTING ON-SITE EASEMENTS

(TR)

9 (5) 5' WIDE INGRESS, EGRESS, WATER PIPES & INCIDENTAL PURPOSES.
GRANTED TO: RICHFIELD OIL CORP
RECORDED: SEPT. 19, 1940
INST. NUMBER: 7438, BOOK 303, PAGE 203 OF OFFICIAL RECORDS
(LOCATION UNDETERMINED)

11 (6) 50' WIDE PUBLIC UTILITY EASEMENT FOR TRANSMISSION TOWERS & INCIDENTAL PURPOSES PER 1717 OR 136, RECORDED FEB. 23, 1960

13 (8) EASEMENT FOR INGRESS, EGRESS, WATER LINES, PUBLIC UTILITIES, ROAD PURPOSES, DRAINAGE AND INCIDENTAL PURPOSES.
GRANTED TO: EDMOND H. BURNS AND FLORENCE H. BURNS
RECORDED: JULY 18, 1967
INST. NUMBER: 30993, BOOK 2197, PAGE 609 OF OFFICIAL RECORDS
PCL=2 VARIABLE, PCL=3 VARIABLE, PCL=8 60' WIDE

13 (9) PRIVATE ROAD UTILITIES AND PIPELINES AND INCIDENTAL PURPOSES.
GRANTED TO: WESLEY M. WUSCO
RECORDED: SEPT. 17, 1979
INST. NUMBER: 79-43159 OF OFFICIAL RECORDS.
(LOCATION UNDETERMINED)

10 (2) AN EASEMENT FOR AUTOMOTIVE AND PEDESTRIAN AND INCIDENTAL PURPOSES.
GRANTED TO: BINTON & SAVAGE, A CORPORATION
RECORDED: JULY 14, 1938 IN BOOK 1843, PAGE 331 AND BOOK 1843, PAGE 337 OF OFFICIAL RECORDS
(LOCATION UNDETERMINED)

12 (7) AN EASEMENT FOR SINGLE LINE OF TOWERS FOR THE TRANSMISSION OF ELECTRIC ENERGY AND INCIDENTAL PURPOSES.
GRANTED TO: PACIFIC GAS AND ELECTRIC COMPANY
RECORDED: AUGUST 11, 1960 IN BOOK 1775, PAGE 32 OF OFFICIAL RECORDS.
(LOCATION UNDETERMINED,SEE UNKNOWN)

17 (10) ACCESS, IRRIGATION, LANDSCAPING, AND MAINTENANCE EASEMENT
GRANTED TO: PARCEL A AS SHOWN ON THE RECORD OF SURVEY FILED IN BOOK 90, PAGE 2 IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.
RECORDED: MAY 12, 2014
INST. NUMBER: 2014-0021365 OF OFFICIAL RECORDS.
AREA 1: VARIABLE WIDTH ACCESS, IRRIGATION, LANDSCAPING AND MAINTENANCE
AREA 2: VARIABLE WIDTH ACCESS BY CART PATH, IRRIGATION, LANDSCAPING AND MAINTENANCE
AREA 3: VARIABLE WIDTH ACCESS BY CART PATH, IRRIGATION, LANDSCAPING AND MAINTENANCE
AREA 4: VARIABLE WIDTH ACCESS, IRRIGATION, LANDSCAPING AND MAINTENANCE
AREA 5: VARIABLE WIDTH ACCESS, IRRIGATION, LANDSCAPING AND MAINTENANCE
AREA 6: VARIABLE WIDTH ACCESS, IRRIGATION, LANDSCAPING AND MAINTENANCE

18 (3) 30' EMERGENCY ACCESS EASEMENT (PTR PARCEL THREE)
GRANTED TO: PARCEL D AS SHOWN ON THE RECORD OF SURVEY FILED IN BOOK 90, PAGE 2 IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.
RECORDED: MAY 12, 2014
INST. NUMBER: 2014-0021366 OF OFFICIAL RECORDS

19 (2) 50' ROAD ACCESS, PUBLIC UTILITIES, DRAINAGE, INGRESS, EGRESS EASEMENT. (PTR PARCEL FOUR)
GRANTED TO: PARCEL D AS SHOWN ON THE RECORD OF SURVEY FILED IN BOOK 90, PAGE 2 IN THE OFFICE OF THE COUNTY RECORDER OF SANTA BARBARA COUNTY.
RECORDED: MAY 12, 2014
INST. NUMBER: 2014-0021367 OF OFFICIAL RECORDS

PROPOSED EASEMENTS

NOTE: SEE RANCHO PUNTA DE LA LAGUNA MAP BK. 90 PG. 2 OF RECORDS OF SURVEYS AS FILED IN THE OFFICE OF THE SANTA BARBARA COUNTY RECORDER FOR REFERENCES

(1) 50' P.U.E. & PRIVATE ACCESS ESMT. IN FAVOR OF PARCEL D. SEPARATE DOCUMENT TO BE RECORDED PRIOR TO RECORDATION OF FINAL MAP.

(2) VARYING WIDTH PRIVATE WATER TANK, ACCESS, MAINTENANCE EASEMENT

NOTE: A NEWLY FORMED MUTUAL WATER CO. AS PART OF TRACT MAP.

(3) VARYING WIDTH PRIVATE ACCESS, P.U.E., PRIVATE PED ACCESS, PUBLIC SEWER, PRIVATE WATER AND DRAINAGE EASEMENT ACROSS LOT 91, SHOWN AS ROADS "A" THROUGH "G"

(4) 10' P.U.E. AND PRIVATE PEDESTRIAN ACCESS EASEMENT

(5) VARYING WIDTH PRIVATE DRAINAGE BASIN EASEMENT

LOT SIZES

LOT NO.	AREA (SF)	LOT NO.	AREA (SF)
1	10,054	26	17,265
2	10,161	27	17,126
3	10,266	28	25,767
4	10,162	29	15,125
5	10,131	30	15,125
6	12,381	31	13,150
7	10,995	32	15,163
8	11,517	33	13,930
9	11,517	34	13,930
10	11,517	35	11,518
11	11,517	36	11,518
12	11,517	37	8,959
13	11,517	38	8,959
14	14,362	39	8,960
15	14,119	40	8,960
16	15,120	41	8,961
17	16,108	42	14,131
18	17,191	43	13,917
19	16,912	44	11,580
20	16,713	45	8,376
21	27,726	46	8,374
22	17,196	47	8,167
23	17,267	48	8,168
24	8,530	49	8,812
25	15,192	50	8,812

LOT NO.	AREA (SF)	LOT NO.	AREA (SF)
51	8,351	79	8,983
52	8,000	80	8,708
53	8,000	81	12,000
54	8,147	82	12,000
55	11,746	83	13,000
56	13,396	84	8,572
57	8,000	85	8,359
58	8,330	86	8,359
59	12,236	87	15,182
60	12,000	88	12,000
61	8,181	89	12,000
62	8,181	90	12,000
63	8,317	91	8,984
64	8,713	92	8,984
65	11,772	93	8,984
66	9,117	94	8,984
67	10,214	95	8,984
68	8,968		
69	13,716		
70	10,399		
71	7,280		
72	8,960		
73	8,960		
74	8,960		
75	8,905		
76	8,901		
77	8,901		
78	8,901		

NOTE:
- LOT 91 (OPEN SPACE): UNDEVELOPED LAND, DEVELOPED LAND AND PROPOSED ROADS)
- OPEN SPACE MAINTENANCE: HOA
- ROAD A, ROAD B, PRIVATE & THERE WILL BE PARKING ON BOTH SIDES OF ROAD

SITE STATISTICS

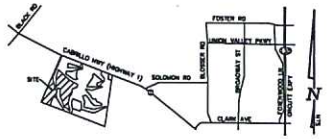
WILLOW CREEK (A.P.N. 113-250-017)			
LOT 91	MANAGED OPEN SPACE		10.78 AC
	UNDISTURBED OPEN SPACE		25.9 AC
	DEVELOPED AREA	SINGLE ROAD ACCESS ROADS	0.30 AC
		INTERNAL PAVED ROAD SURFACE	7.7 AC
LOT 1-90		TOTAL GROSS PRIVATE LOT AREA	36.1 AC
TOTAL GROSS SITE AREA			70.0 AC

*INCLUDES SIDEWALKS

WILLOW CREEK (A.P.N. 113-250-014)	
ROAD EASEMENT AREA	0.21 AC
	0.14 AC
TOTAL	0.35 AC

WATER TANK INFORMATION

MAX CAPACITY	200,000 GALLONS
HEIGHT	24 FT
DIAMETER	16 FT
MATERIAL	WELDED STEEL



VICINITY MAP

BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-3767

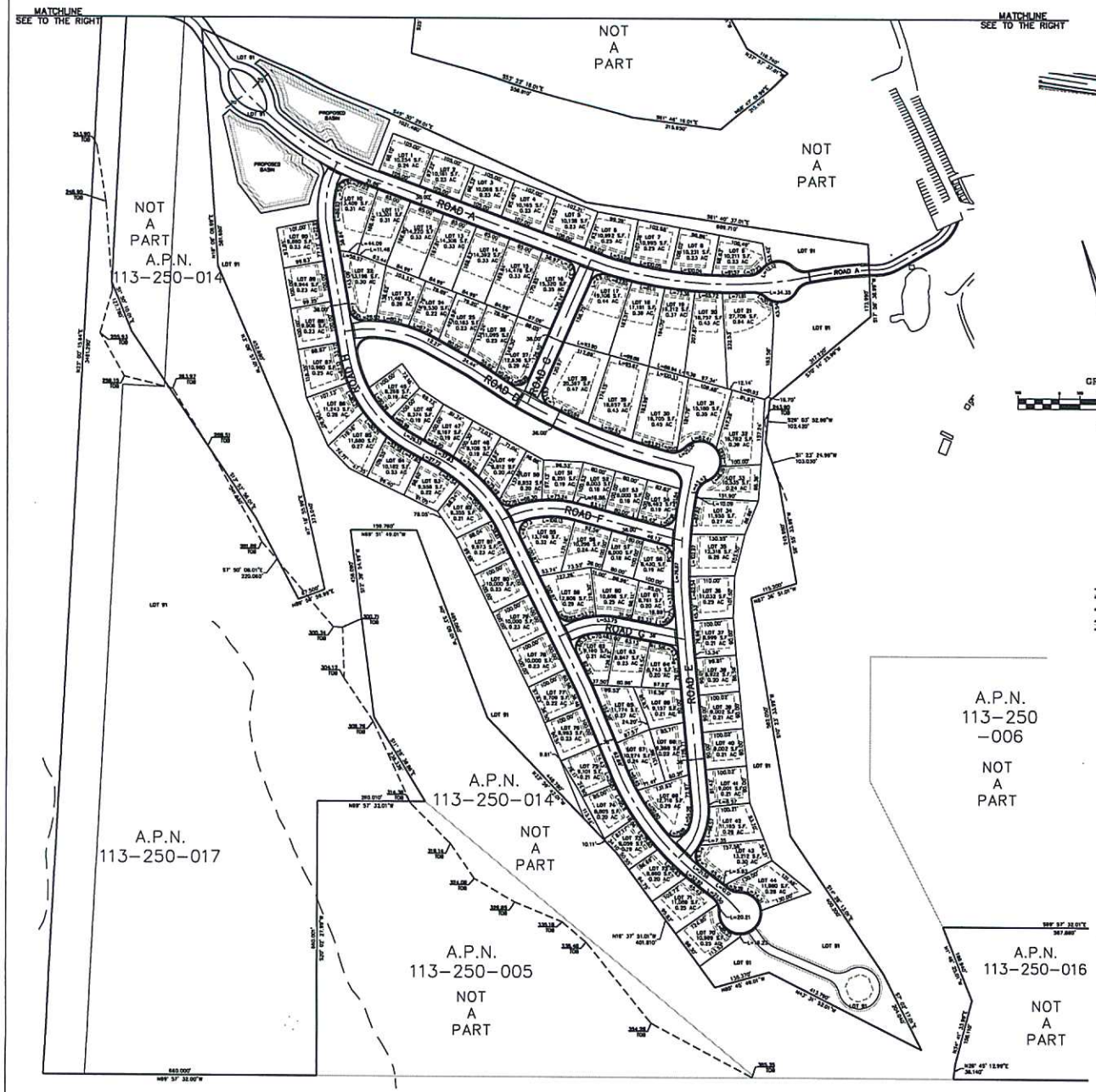
DEVELOPMENT PLAN FOR NEIGHBORHOODS OF WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

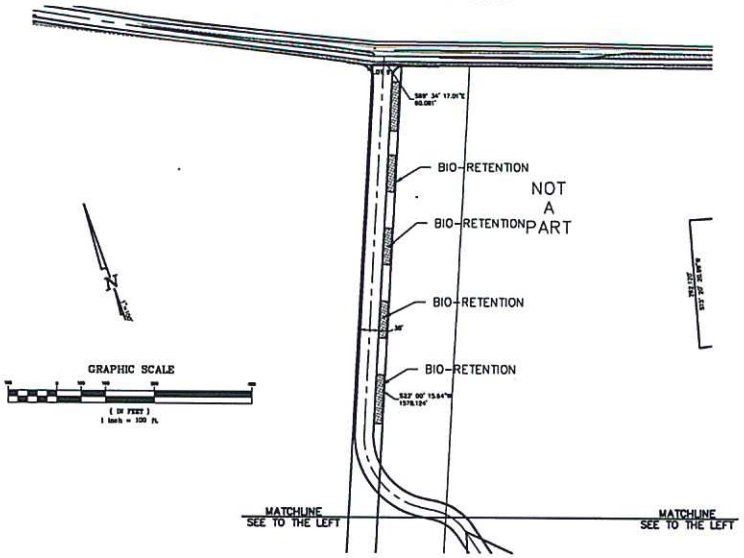
DESIGNED BY: D.K.
CHECKED BY: P.J.C.
REVISIONS
DATE DESCRIPTION

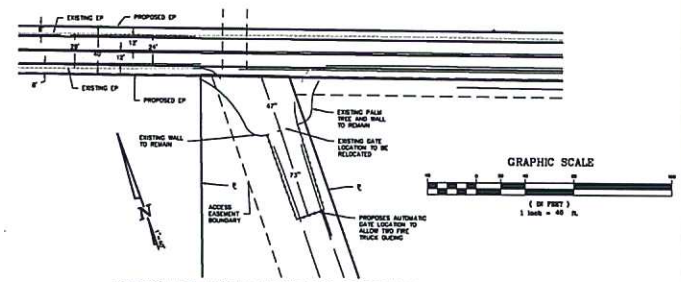
SCALE: AS SHOWN
SHEET 1 OF 3

NEIGHBORHOODS OF WILLOW CREEK

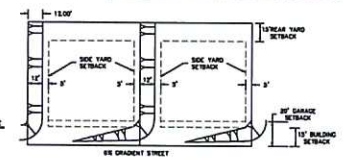
TRACT 14,823
VESTING TENTATIVE TRACT MAP
P&D CASE NO. 16TRM-00000-00004



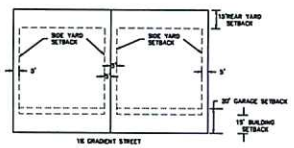




HIGHWAY 1 ENTRANCE TO RANCHO MARIA GOLF COURSE



TYPICAL LOT SETBACKS WITH SLOPES

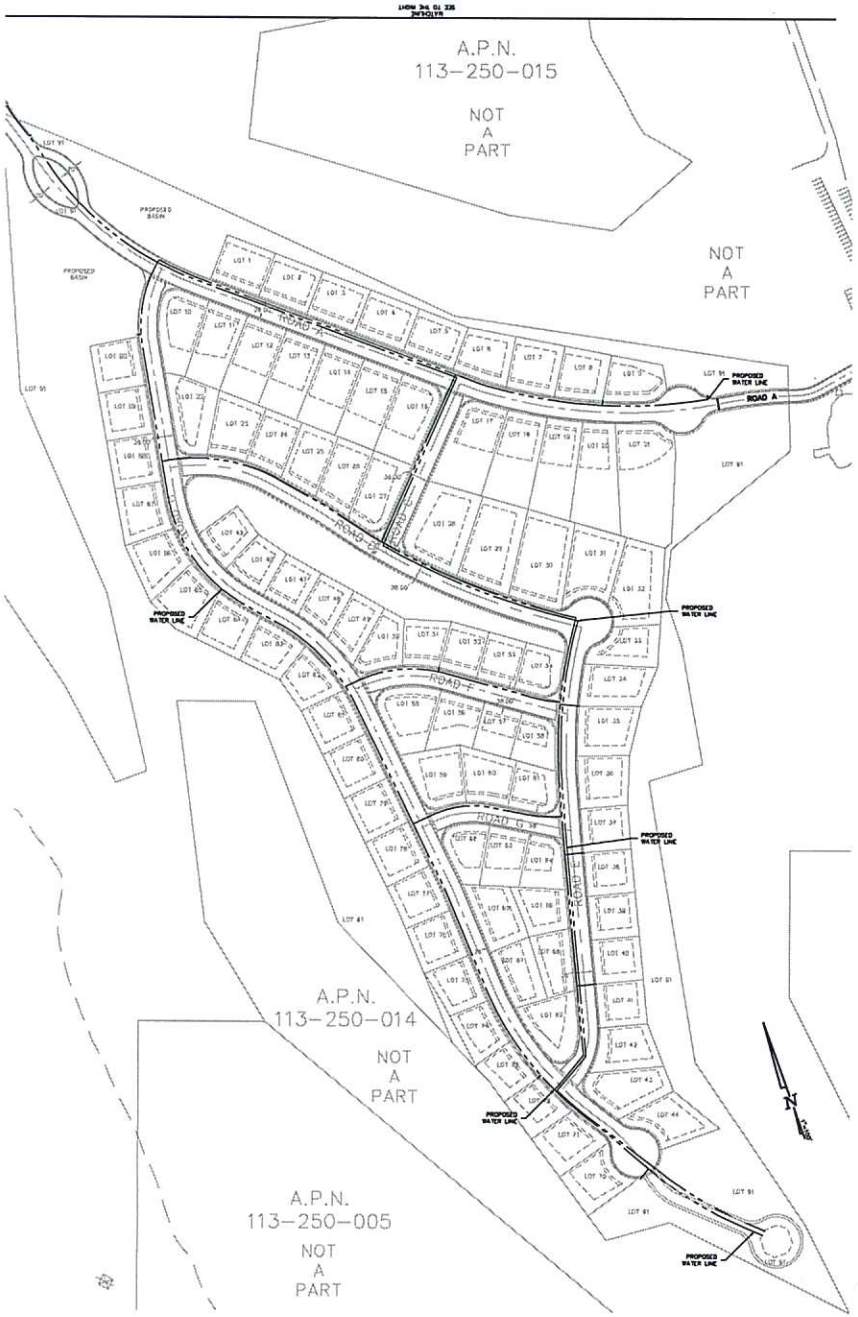


TYPICAL LOT SETBACKS

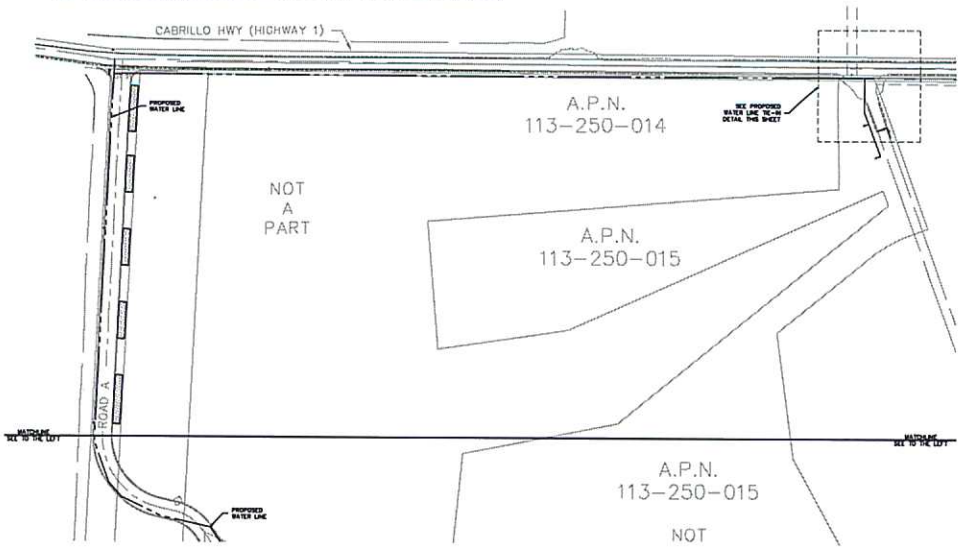
BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-3767

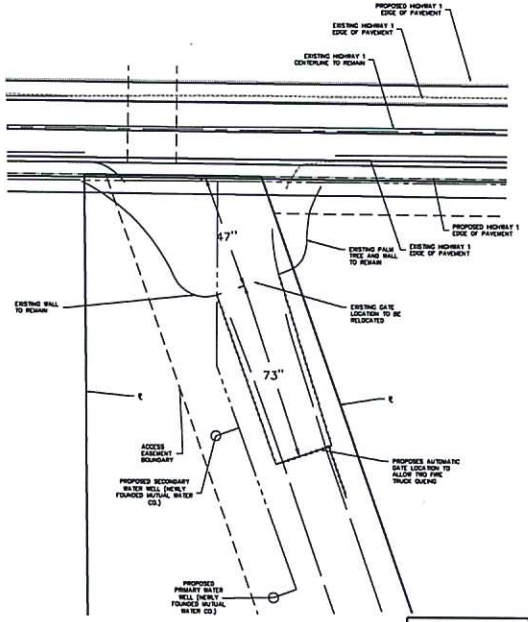
DEVELOPMENT PLAN FOR NEIGHBORHOODS OF WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

DESIGNED BY: D.V.
CHECKED BY: P.J.S.
REVISIONS
DATE DESCRIPTION
SCALE: AS SHOWN
DATE
SHEET 2 OF 3



NEIGHBORHOODS OF WILLOW CREEK





PROPOSED WATER LINE TIE-IN

NTS

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

BETHEL engineering
2524 Airport Dr. Santa Maria, California 93455 (805) 934-5767

DESIGNED BY:	G.V.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

PROPOSED WATER FOR NEIGHBORHOODS OF WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

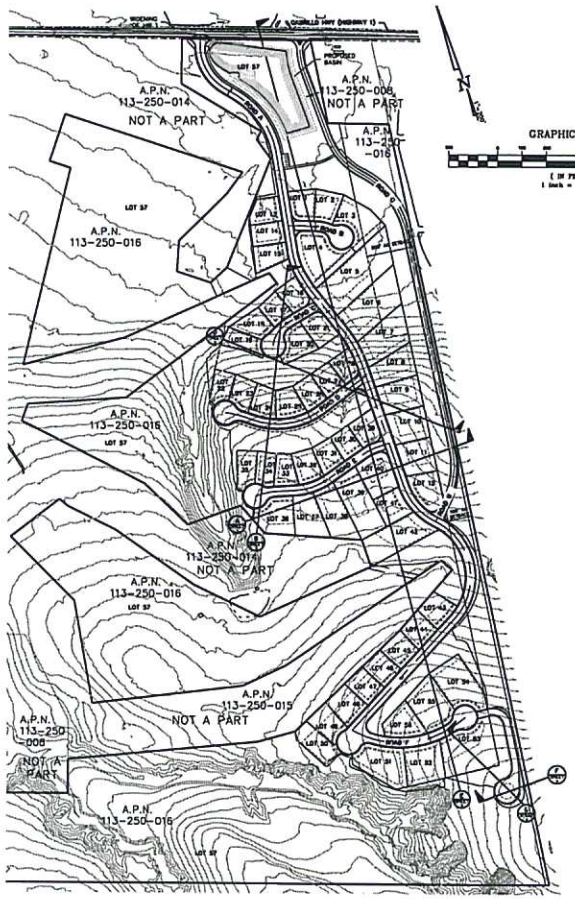
DATE

SCALE: AS SHOWN

SHEET 3 OF 3

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016



LEGEND

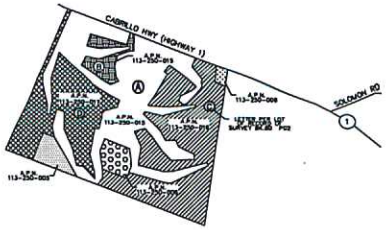
PROJECT BOUNDARY
CENTERLINE
PROPERTY LINE
CURB LINE
EXIST. CURB LINE
EASEMENT LINE
STORM DRAIN
TOP/BOT OF BANKS
E.P./A.P. OF GUTTER
WATER LINES
MASONRY WALL
2:1 SLOPE
4:1 SLOPE
EXIST. CONTOURS (300)

STORM DRAIN MANHOLE
EXIST. S.D. MANHOLE
EXIST FIRE HYDRANT
CATCH BASIN

ABBREVIATIONS

TOP OF CURB	T.C.
FLOWLINE	F.L.
EDGE OF PAVEMENT	E.P.
ASPHALT CONCRETE	A.C.
HIGH POINT	H.P.
LOW POINT	L.P.
FINISHED GRADE	F.G.
BACK OF WALK	B.W.
GRADE BREAK	G.B.

GRAPHIC SCALE
(IN FEET)
1 inch = 600 ft.



RANCHO PUNTA DE LA LAGUNA (PARCEL MAP PER TITLE REPORT)
N.T.S.

PROJECT INFORMATION

ASSESSOR'S PARCEL NUMBER	113-250-016
EXISTING ZONING	PRD
NUMBER OF LOTS	57
OPEN SPACE	LOT 57
GROSS AREA	106.73 ACRES) 4,648,538 S.F.
AVERAGE LOT SIZE	15,000 S.F.
ZONING	PRD

EARTHWORK QUANTITIES

RAW CUT: 330,248 C.Y. CUT
RAW FILL: 285,118 C.Y. FILL
84,387 C.Y. NET CUT

*2 SOIL SHRINKAGE
*INCLUDES INCLUDE OVER EXCAVATION
SEWER VOLUME: 1,814 C.Y.
*SEWER LINE THAT WILL CONNECT TO TRUNK LINE

BENCHMARK

THE LOCAL BENCHMARK FOR THIS PROJECT IS BASED ON THE SANTA MARIA VALLEY OPS CONTROL POINT NUMBER 1005. RECORDED IN BOOK 167 AT PAGES 37-41 OF RECORD OF SURVEYS. ELEVATION =611.43 (NAVD88)

BASIS OF BEARINGS

THE "BASIS OF BEARINGS" FOR THIS SURVEY IS THE SOUTHERLY LINE OF PROPERTIES SHOWN ON MAP FILED IN BOOK 80, AT PAGE 2 OF RECORD OF SURVEYS, AND NOTED HEREON AS N89°37'26"W.

BASIN INFORMATION

THIS SITE INCLUDES IN A.P.N. 113-250-016 DEVELOPMENT DESIGN, 1 RETENSATION BASIN HAS BEEN PROPOSED FOR THIS SITE TO HANDLE THE SITES STORM WATER. THE BASIN IN SIZE IS APPROXIMATELY 83,987 SQUARE FEET.

LOT SIZES

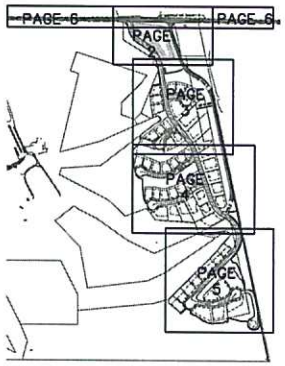
LOT NO.	AREA (S.F.)	LOT NO.	AREA (S.F.)	LOT NO.	AREA (S.F.)
1	15,000	21	15,000	41	17,106
2	15,000	22	15,000	42	17,215
3	15,000	23	15,000	43	15,000
4	20,081	24	15,000	44	15,000
5	20,081	25	15,721	45	15,116
6	26,468	26	15,000	46	15,364
7	26,708	27	17,263	47	15,205
8	17,004	28	15,000	48	15,116
9	17,004	29	15,000	49	15,116
10	20,133	30	15,000	50	15,116
11	15,340	31	17,197	51	16,034
12	17,173	32	15,000	52	16,034
13	15,184	33	15,000	53	16,034
14	15,000	34	15,000	54	16,034
15	15,000	35	15,000	55	15,139
16	15,000	36	15,000	56	15,139
17	15,139	37	15,105		3,638,995
18	15,140	38	15,000		
19	15,305	39	20,534		
20	15,000	40	21,134		

NOTE:
- LOT 57 (OPEN SPACE, UNDEVELOPED LAND, DEVELOPED LAND AND PROPOSED ROADS) IS TO BE OWNED AND MAINTAINED BY HOA
- ROAD APE TO BE PRIVATE, IN THERE WILL BE PARKING ON BOTH SIDES OF ROAD

SITE STATISTICS

HIDDEN CANYON (A.P.N. 113-250-016)			
LOT 57	MANAGED OPEN SPACE	15.1 AC	15.1%
	UNDISTURBED OPEN SPACE	39.3 AC	39.9%
	DEVELOPED AREA — PARKS AND ACCESS ROADS	0.99 AC	0.9%
	DEVELOPED AREA — *TOTAL PAVED ROAD SURFACE	7.4 AC	6.9%
LOT 1-56	TOTAL GROSS PRIVATE LOT AREA	23.3 AC	21.7%
TOTAL GROSS SITE AREA		105.7 AC	100%

*INCLUDES SIDEWALKS



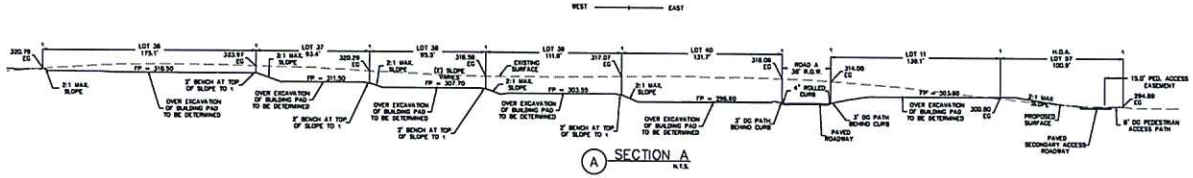
WATER TANK INFORMATION

MAX CAPACITY	200,000 GALLONS
HEIGHT	24 FT
DIAMETER	50 FT
MATERIAL	WELDED STEEL

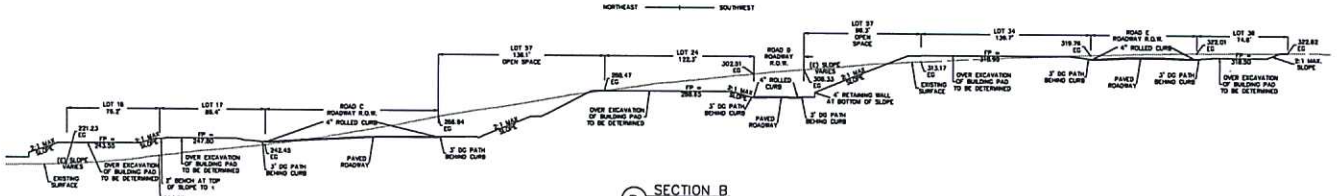
40' WIDE HIGHWAY 1 TYPICAL ROADWAY

24' WIDE SECONDARY/EMERGENCY ACCESS ROAD

36' WIDE TYPICAL ROADWAY



(A) SECTION A
N.T.S.



(B) SECTION B
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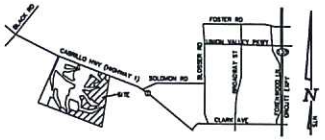


VICINITY MAP

BETHEL engineering
2624 Airport Dr. Santa Maria, California 93455 (805) 934-5767

10/4/17

DESIGNED BY:	B.V.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION
SCALE:	AS SHOWN
SHEET	1 OF 1

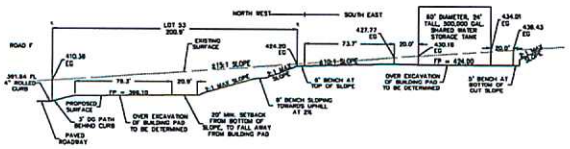
REGISTERED PROFESSIONAL ENGINEER — RICHARD J. CAMPBELL — C 36 — CIVIL — STATE OF CALIFORNIA

PRELIMINARY GRADING PLAN NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016



C SECTION C
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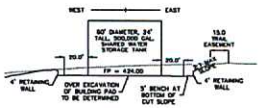
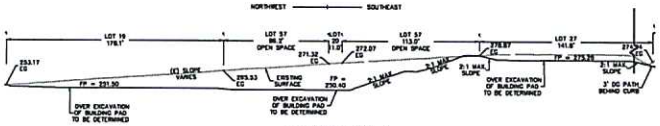
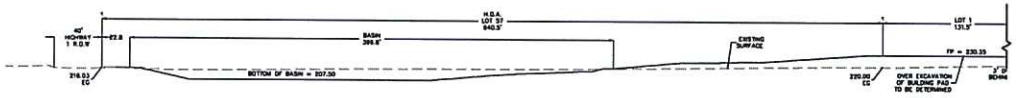


F SECTION F
N.T.S.



D SECTION D
N.T.S.

D SECTION D
N.T.S.



E SECTION E
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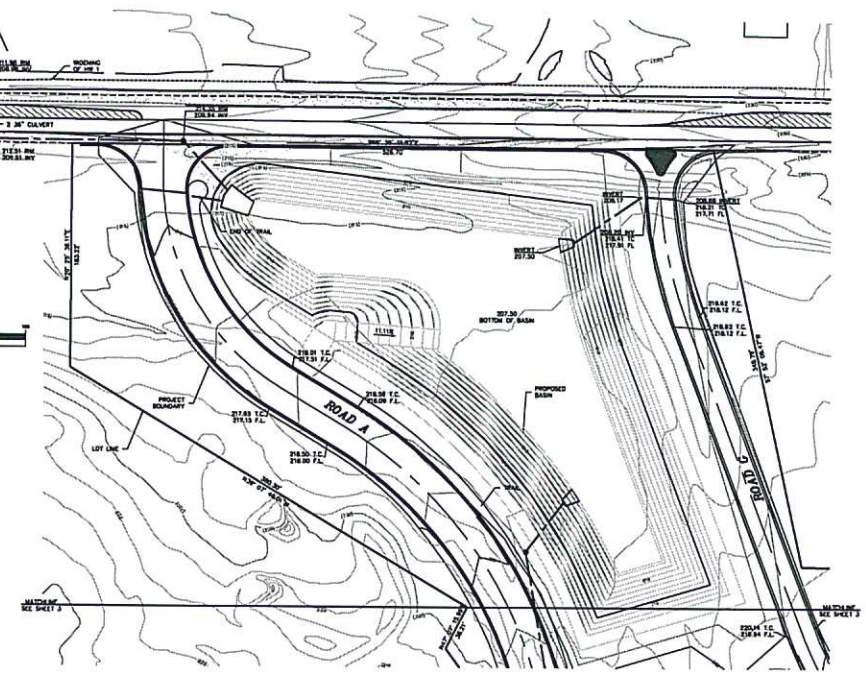

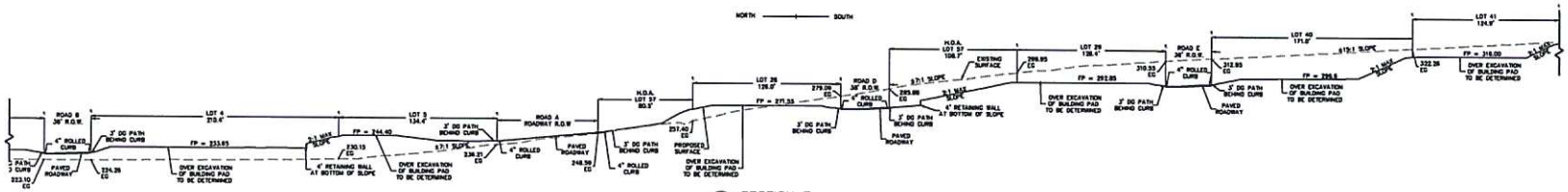

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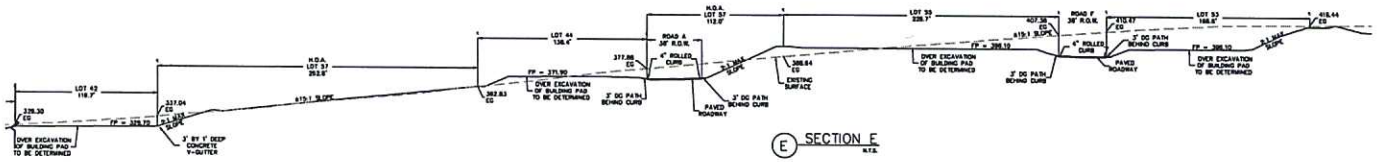


E SECTION E
N.T.S.

10/5/17

DESIGNED BY:	R.V.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
HIDDEN CANYON
COUNTY OF SANTA BARBARA, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
ROBERT J. CARLSON
RCE 60 [illegible]
FOR REVIEW ONLY
STATE OF CALIFORNIA

SIGNATURE OF ENGINEER: R.J.C. 09/07 DATE:

BETHEL engineering
2624 Airport Dr.
Santa Maria, California 93455
(805) 934-5787

SCALE: AS SHOWN

SHEET 2 OF 7

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016

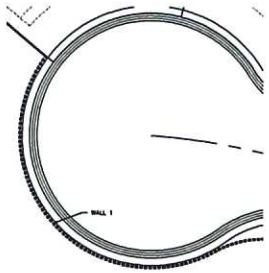
GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

DESIGNED BY: D.K.	PRELIMINARY GRADING PLAN NEIGHBORHOODS OF HIDDEN CANYON COUNTY OF SANTA BARBARA, CALIFORNIA	10/5/17
CHECKED BY: R.J.C.		
REVISIONS		
DATE / DESCRIPTION		
	BETHEL engineering 3824 Airpark Dr. Santa Maria, California 93455 (805) 934-3767	SCALE: AS SHOWN
		SHEET 3 OF 7

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016



(W) ROAD D CUL DE SAC 4' RETAINING WALLS

GRAPHIC SCALE

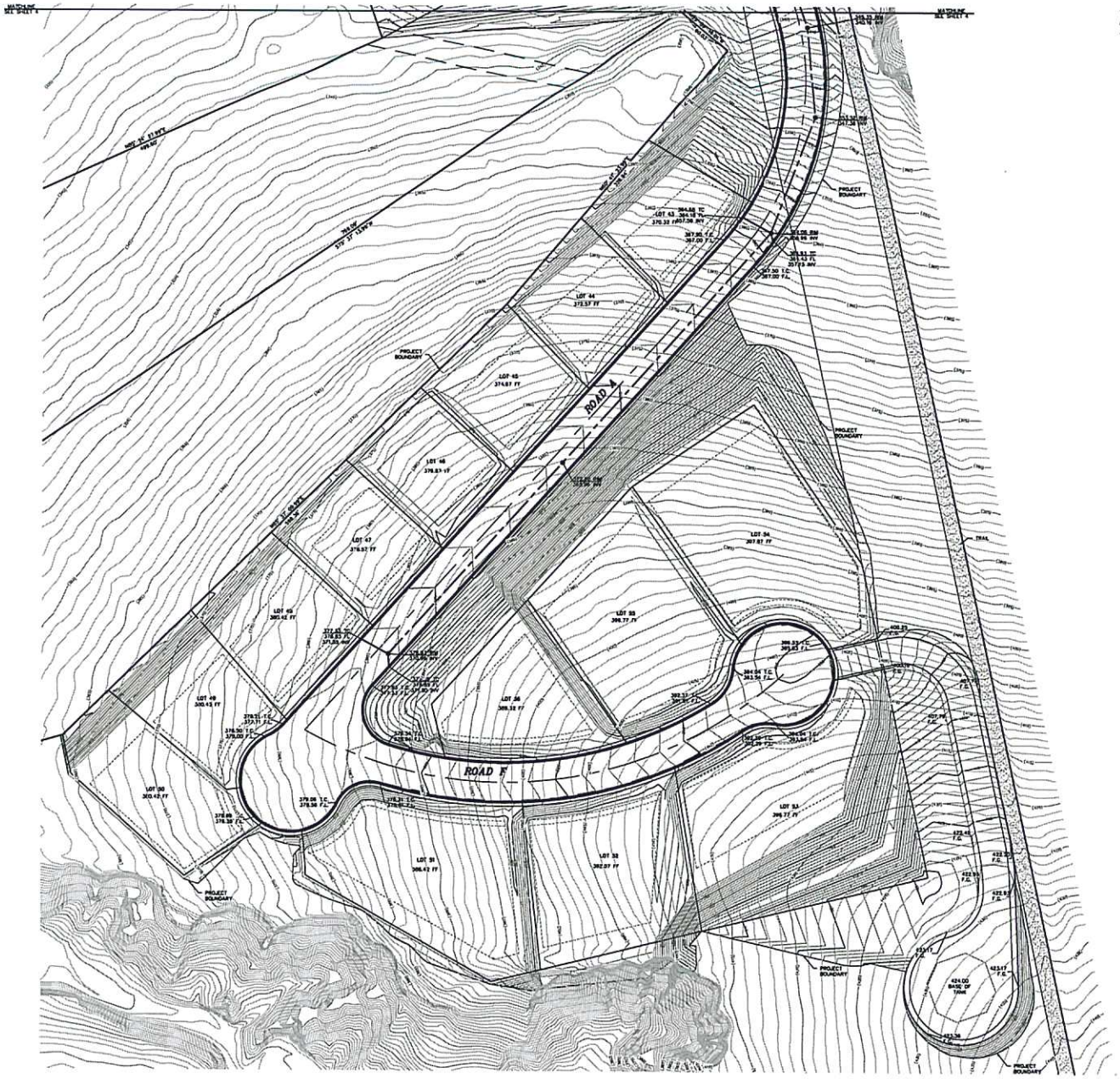
(IN FEET)
1 inch = 40 ft.

10/4/17

DESIGNED BY: B.V.	PRELIMINARY GRADING PLAN NEIGHBORHOODS OF HIDDEN CANYON
CHECKED BY: R.J.C.	COUNTY OF SANTA BARBARA, CALIFORNIA
REVISIONS: DATE / DESCRIPTION	
BETHEL engineering, 3524 Airport Dr. Santa Maria, California 93455 (805) 934-3767	SCALE: AS SHOWN
	SHEET 4 OF 7

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016



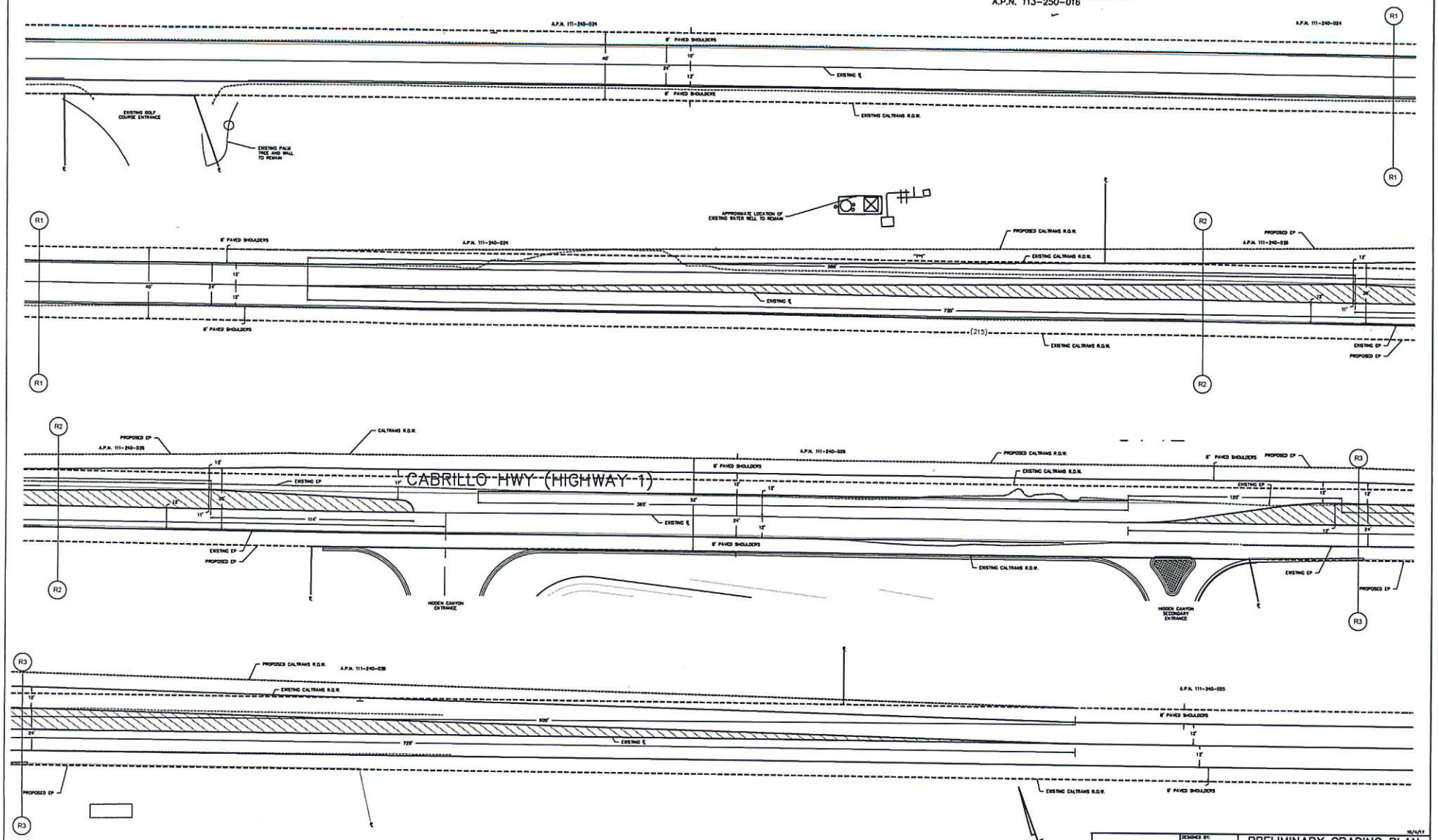
GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

DESIGNED BY: B.K.	PRELIMINARY GRADING PLAN NEIGHBORHOODS OF HIDDEN CANYON	10/4/17
CHECKED BY: R.J.C.	COUNTY OF SANTA BARBARA, CALIFORNIA	
REVISIONS: DATE / DESCRIPTION		
	BETHEL engineering, 2624 Airport Dr. Santa Maria, California 93455 (805) 934-5787	SCALE: AS SHOWN
		SHEET 3 OF 7

NEIGHBORHOODS OF HIDDEN CANYON

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-016



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

DESIGNED BY:	B.K.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
RICHARD J. CORNEJO
No. 72080
Civil
STATE OF CALIFORNIA

10/4/17

PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
HIDDEN CANYON
COUNTY OF SANTA BARBARA, CALIFORNIA

SIGNATURE & LICENSE | DATE

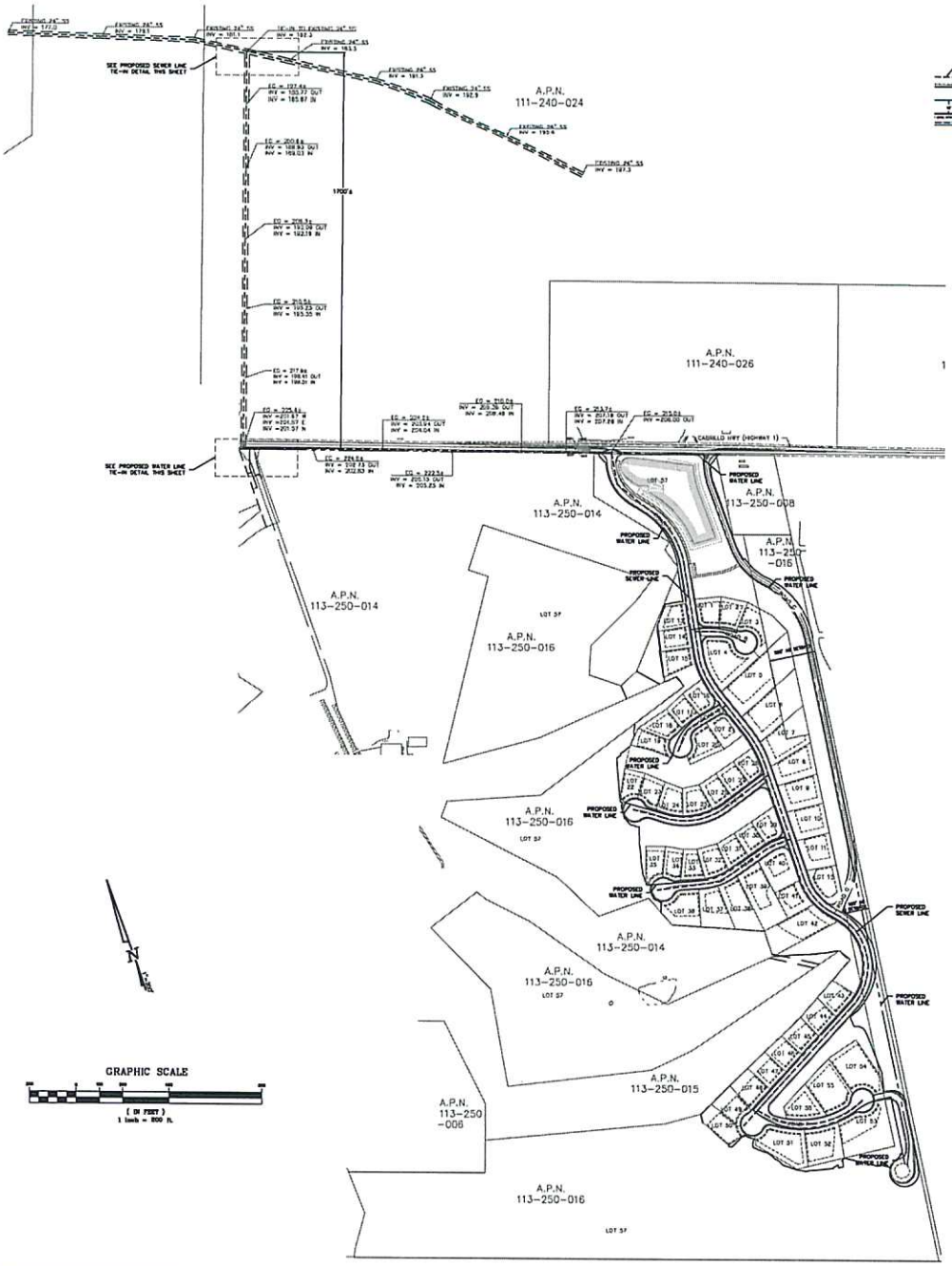
BETHEL engineering
2624 Airport Dr.
Santa Maria, California 93455
(805) 934-5787

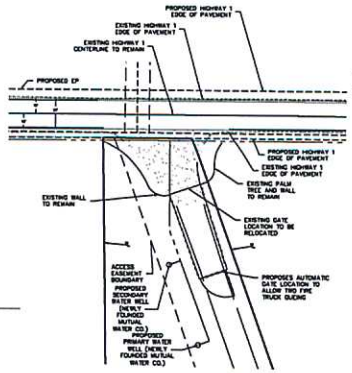
SCALE: AS SHOWN

SHEET 6 OF 7

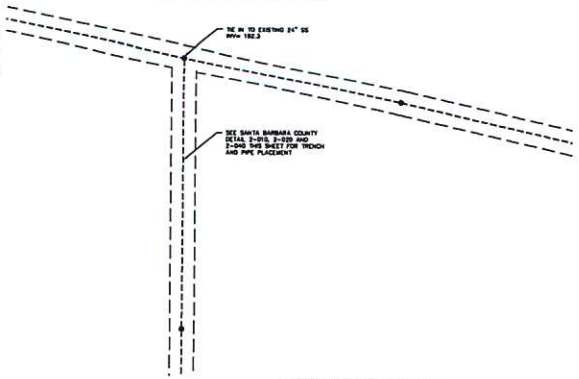
NEIGHBORHOODS OF WILLOW CREEK

PROPOSED SEWER AND WATER LINE





PROPOSED WATER LINE TIE-IN
NTS

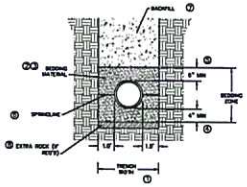


PROPOSED SEWER LINE TIE-IN
NTS

1. CAL-OSHA AND OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH REQUIREMENTS SHALL BE MET FOR ALL TRENCH OPERATIONS
2. TRENCHES SHALL BE EXCAVATED DEEP ENOUGH TO ASSURE AT LEAST 2.5' OF COVER FOR THE UNDERGROUND PIPE. SOME CONSTRUCTION MAY BE REQUIRED TO ACHIEVE A STABLE, EVEN FLOOR IN THE TRENCH, AND EXTRA BEDDING MATERIAL MAY BE REQUIRED TO PROVIDE A SUITABLE FOUNDATION FOR THE FACILITY.
3. ALL TRENCH BEDDING MATERIAL SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 19-3.
4. NO PONDING, JETTING, OR FLOODING IS PERMITTED UNDER EXISTING ROADS, IN OTHER AREAS, SUCH METHODS MUST BE APPROVED BY THE COUNTY ENGINEER.
5. ALL UTILITIES SHALL BE INSPECTED, TESTED, AND VERIFIED TO THE COUNTY ENGINEER PRIOR TO PLACEMENT OF TRENCH BACKFILL. STREET IMPROVEMENT PLANS SHALL BE SIGNED BY THE UTILITY COMPANIES AND THE COUNTY FIRE DEPARTMENT.
6. WHERE A TRENCH CROSSES UNDER AN EXISTING UTILITY, THE CONTRACTOR MUST PROVIDE ADEQUATE SUPPORT AND AVOID ANY DISTURBANCE OF THE UTILITY. BACKFILLING MUST INCLUDE PREPARING A NEW BED FOR THE EXISTING UTILITY AND PERFORMING COMPACTION TESTS.
7. MAXIMUM DENSITY AND OPTIMUM MOISTURE TESTS MUST BE MADE FOR ALL BACKFILL AND BEDDING MATERIALS EXCEPT CEMENT SLURRY OR 3/4" WASHED CRUSHED ROCK.
8. FOR TRENCHES LESS THAN 8.0' DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, ONE COMPACTION TEST SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
9. FOR TRENCHES 8.0' OR MORE DEEP MEASURED FROM FINISHED GRADE TO FLOOR, TOW COMPACTION TESTS SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
10. EVERY LATERAL UTILITY TRENCH SHALL BE TESTED FOR COMPACTION AT THE SAME SCHEDULE AS THE MAIN TRENCH.
11. PAVING MATERIAL SHALL BE ASPHALTIC CONCRETE PER 1-010, NOTE 16. IT SHALL BE 6" THICK AFTER COMPACTION.
12. ASPHALT PAVING SHALL BE RESTORED WITH A "FOG" SEAL IN CONFORMANCE WITH COUNTY SPECIFICATIONS FOR ITS "FOG" SEAL PROGRAM OF CURRENT DATE. FOG SEALING SHALL EITHER BE :
    A. BONDED FOR AND COMPLETED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM THE START OF THE WARRANTY PERIOD, OR
    B. A PAYMENT SHALL BE MADE TO THE COUNTY BASED ON THE COUNTY'S COST TO PERFORM THE FOG SEAL PLUS 15% FOR ADMINISTRATION AND INSPECTION. PAYMENT SHALL BE MADE PRIOR TO THE IMPROVEMENT PERMIT ISSUANCE.
13. WHERE PAVEMENT IS SHOWING SIGNS OF DAMAGE OR WEAR, THE COUNTY ENGINEER MAY REQUIRE A TYPE II SLURRY SEAL INSTEAD OF "FOG" SEAL.

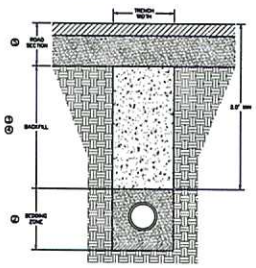
SANTA BARBARA COUNTY STANDARD:
2-010 GENERAL TRENCH NOTES

1. TRENCH WIDTH SHALL BE SUFFICIENT TO FULLY ENCLOSE THE PIPE AND ALLOW COMPACTION TESTING AT THE SPRING LINE.
2. BEDDING MATERIAL FOR UTILITY TRENCHES SHALL MEET THE STANDARDS OF THE UTILITY COMPANY INVOLVED.
3. BEDDING MATERIAL FOR HDPE, RCP AND CMP SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATION AND SHALL BE COMPACTED TO 85% RELATIVE COMPACTION. FILL MUST BE PLACED IN LIFTS NO LARGER THAN 8" TO FACILITATE COMPACTION. FOR CMP PIPE, THE BEDDING MATERIAL SHALL BE TESTED FOR NEUTRAL pH.
4. THE THICKNESS OF THE LAYER OF BEDDING UNDER THE PIPE SHALL BE AT LEAST 4" OR 10% OF THE PIPE DIAMETER, WHICHEVER IS LARGER.
5. BEDDING MATERIAL SHALL BE COMPLETELY COVER THE PIPE TO MINIMUM HEIGHT OF 6" AFTER COMPACTION.
6. CARE MUST BE TAKEN TO PLACE THE BEDDING EVENLY UNDER THE LENGTH OF THE PIPE TO ASSURE ADEQUATE SUPPORT. COMPACTION TESTING IS REQUIRED AT THE SPRINGLINE OF THE PIPE WHEN SAND IS USED AS BEDDING MATERIAL.
7. BEDDING MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD 2-030 AND 2-040.
8. SEE NOTE 2 ON 1-010

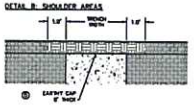


SANTA BARBARA COUNTY STANDARD:
2-020 PIPE BEDDING DETAILS NTS

DETAIL A: NEW ROADS



DETAIL B: SHOULDER AREAS



1. ALL TRENCH WORK FOR NEW ROADS AND FOR SHOULDERS WITHIN 3.0' OF PAVEMENT SHALL COMPLY WITH THIS STANDARD.
2. BEDDING DETAILS SHALL COMPLY WITH SBCO STD. 2-020.
3. TRENCH BACKFILL SHALL BE NATIVE, IMPORT, OR A MIXTURE OF THE TWO, FREE OF ORGANIC MATTER AND DEBRIS, AND WITH NO ROCKS OR CLUMPS LARGER THAN 2" WITH A SAND EQUIVALENT VALUE OF 20 OR GREATER.
4. BACKFILL SHALL BE COMPACTED TO 85% RELATIVE COMPACTION.
5. REFER TO SECTION 8 FOR THICKNESS OF THE ROAD SECTION.
6. EARTHY MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD. 2-030.

SANTA BARBARA COUNTY STANDARD:
2-040 TRENCHES FOR NEW ROADS NTS

10/6/11

BETHEL engineering
2924 Airport Dr. Santa Maria, California 93455 (805) 934-3767

REGISTERED PROFESSIONAL ENGINEER — LIC NO. 36867 — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	B.J.C.
REVISIONS	
DATE	DESCRIPTION

PROPOSED SEWER AND WATER LINE FOR NEIGHBORHOODS OF HIDDEN CANYON

COUNTY OF SANTA BARBARA, CALIFORNIA

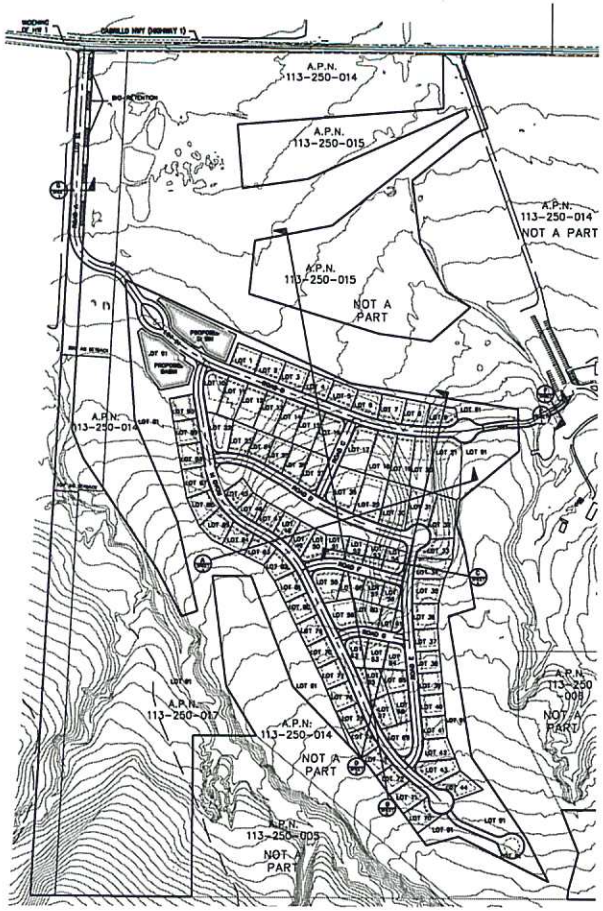
ROBERT A. JOHNSON — R.C.E. 36867 — DATE

SCALE: AS SHOWN

SHEET 7 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017



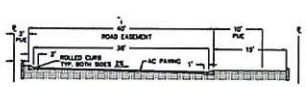
LEGEND

PROJECT BOUNDARY	
CENTERLINE	
PROPERTY LINE	
CURB LINE	
BUILDING SETBACKS	
EASEMENT LINE	
STORM DRAIN	
EXIST STORM DRAIN	
C.P./L.P OF GUTTER	
WATER LINES	
RANDOM WALL	
3:1 SLOPE	
4:1 SLOPE	
EXIST. CONTOURS	(300)

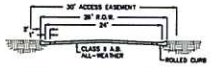
STORM DRAIN MANHOLE	
EXIST. S.D. MANHOLE	
EXIST FIRE HYDRANT	
CATCH BASIN	
EXISTING GRADE	(XXX)

ABBREVIATIONS

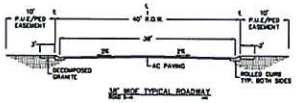
TOP OF CURB	T.C.
FLOWLINE	F.L.
EDGE OF PAVEMENT	E.P.
ASPHALT CONCRETE	A.C.
HIGH POINT	H.P.
LOW POINT	L.P.
FINISHED GRADE	F.G.
BACK OF WALK	B.W.
GRADE BREAK	G.B.



(G) 26' WIDE ENTRANCE ROADWAY
Sheet 8

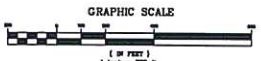


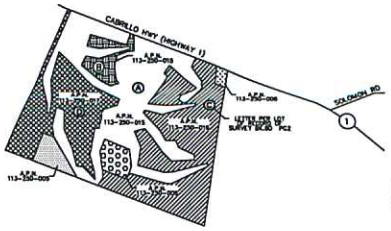
24' WIDE SECONDARY/EMERGENCY ACCESS ROAD
Sheet 8



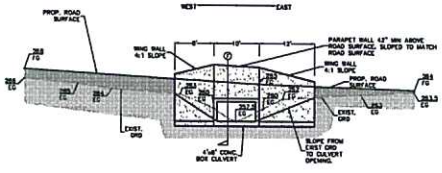
30' WIDE TYPICAL ROADWAY
Sheet 8

40' WIDE HIGHWAY 1 TYPICAL ROADWAY

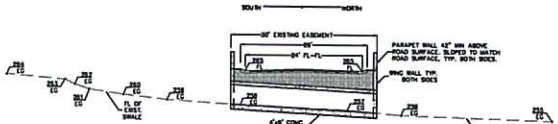




RANCHO PUNTA DE LA LAGUNA (PARCEL MAP PER TITLE REPORT)
N.T.S.



(E) SECTION E
N.T.S.



(F) SECTION F
N.T.S.

PROJECT INFORMATION

ASSESSOR'S PARCEL NUMBER:	113-250-017
EXISTING ZONING:	PRD
NUMBER OF LOTS:	91
OPEN SPACE:	LOT 91
GROSS AREA:	19.00 ACRES (828,319 S.F.)
AVERAGE LOT SIZE:	11,275 S.F.
ZONING:	PRD

EARTHWORK QUANTITIES

RAW CUT:	197,742 C.Y. CUT
RAW FILL:	229,151 C.Y. FILL
	37,631 C.Y. NET FILL

*2 SIDE SHRINKAGE
**ROLLED VOLUME OVER EXCAVATION
SEWER VOLUME: 1,894 C.Y.
***SEWER LINE THAT WILL CONNECT TO TRUNK LINE

BENCHMARK

THE LOCAL BENCHMARK FOR THIS PROJECT IS BASED ON THE SANTA BARBARA VALLEY OPS CONTROL POINT NUMBER 1005, RECORDED IN BOOK 147 AT PAGES 37-41 OF RECORD OF SURVEYS. ELEVATION = 163.43 (NAVD88)

BASIS OF BEARINGS

THE "BASIS OF BEARINGS" FOR THIS SURVEY IS THE SOUTHERLY LINE OF PROPERTIES SHOWN ON MAP FILED IN BOOK 82, AT PAGE 3 OF RECORD OF SURVEYS, AND NOTED HEREON AS N88°23'30"E.

BASIN INFORMATION

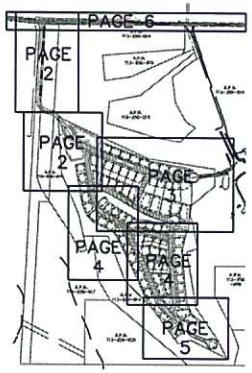
THIS SITE INCLUDED IN A.P.N. 113-250-017 DEVELOPMENT DESIGN, 3 BIO-RETENTION BASINS & 2 RETENTION BASINS HAVE BEEN PROPOSED FOR THIS SITE TO HANDLE THE SITES STORM WATER. THE BASINS RANGE IN SIZES FROM APPROXIMATELY 20,000 SQUARE FEET TO APPROXIMATELY 30,000 SQUARE FEET.

LOT SIZES

LOT NO.	AREA (SF)
1	10,141
2	10,101
3	10,101
4	10,101
5	10,101
6	10,101
7	10,101
8	10,101
9	10,101
10	10,101
11	11,301
12	11,725
13	11,300
14	10,451
15	10,451
16	10,451
17	10,110
18	10,213
19	10,717
20	10,717
21	11,198
22	11,241
23	9,535
24	10,153
25	9,500
26	9,500
27	9,500
28	9,500
29	9,500
30	9,500
31	9,500
32	9,500
33	9,500
34	9,500
35	9,500
36	9,500
37	9,500
38	12,208
39	10,588
40	9,761
41	9,760
42	9,941
43	9,743
44	10,774
45	9,117
46	10,314
47	10,348
48	10,718
49	10,949
50	10,288
51	10,288
52	9,938
53	9,909
54	9,101

LOT NO.	AREA (SF)
55	11,300
56	10,300
57	10,300
58	10,300
59	10,300
60	10,300
61	10,300
62	10,300
63	10,300
64	10,300
65	10,300
66	10,300
67	10,300
68	10,300
69	10,300
70	10,300
71	10,300
72	10,300
73	10,300
74	10,300
75	10,300
76	10,300
77	10,300
78	10,300
79	10,300
80	10,300
81	10,300
82	10,300
83	10,300
84	10,152
85	11,380
86	11,943
87	10,580
88	9,905
89	9,941
90	9,882
91	2,021,500

NOTE:
- LOT 91 OPEN SPACE: UNDEVELOPED LAND, DEVELOPED LAND AND PROPOSED ROADS
- LOT 91 OPEN SPACE: MAINTENANCE: HOA ROADS ARE TO BE PRIVATE & PARKING WILL BE PARKING ON BOTH SIDES OF ROAD



SITE STATISTICS

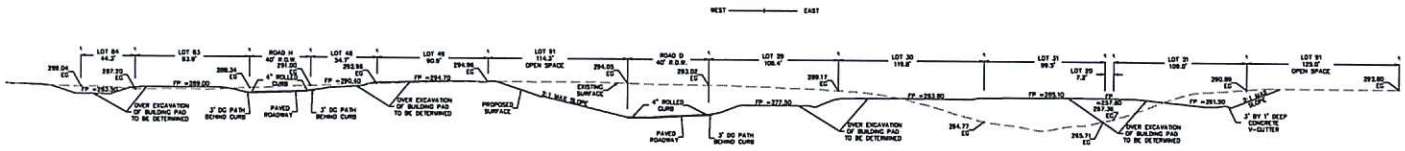
WILLOW CREEK (A.P.N. 113-250-017)				
LOT 91	MANAGED OPEN SPACE		13.7 AC	16.9%
	UNDISTURBED OPEN SPACE		24.7 AC	30.3%
	DEVELOPED AREA	TANKS AND ACCESS ROADS	0.3 AC	0.7%
		TOTAL PAVED ROAD SURFACE	7.9 AC	10.0%
		TOTAL GROSS PRIVATE LOT AREA	33.5 AC	33.0%
	TOTAL GROSS SITE AREA		80.0 AC	100%

*INCLUDES SIDEWALKS

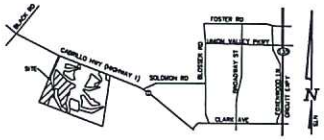
WILLOW CREEK (A.P.N. 113-250-017)		
ROAD EASEMENT AREA	8.21 AC	98.93%
	0.14 AC	40.07%
TOTAL	8.35 AC	100%

WATER TANK INFORMATION

MAX CAPACITY	200,000 GALLONS
HEIGHT	24 FT
DIAMETER	50FT
MATERIAL	WELDED STEEL



(A) SECTION A
N.T.S.



VICINITY MAP

10/1/17

BETHEL engineering
2924 Airport Dr. Santa Maria, California 93455 (805) 934-5767

REGISTERED PROFESSIONAL ENGINEER — RUSSELL J. BETHEL — LIC NO. 36867 — STATE OF CALIFORNIA

DESIGNED BY:	B.K.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

PRELIMINARY GRADING PLAN NEIGHBORHOODS OF WILLOW CREEK

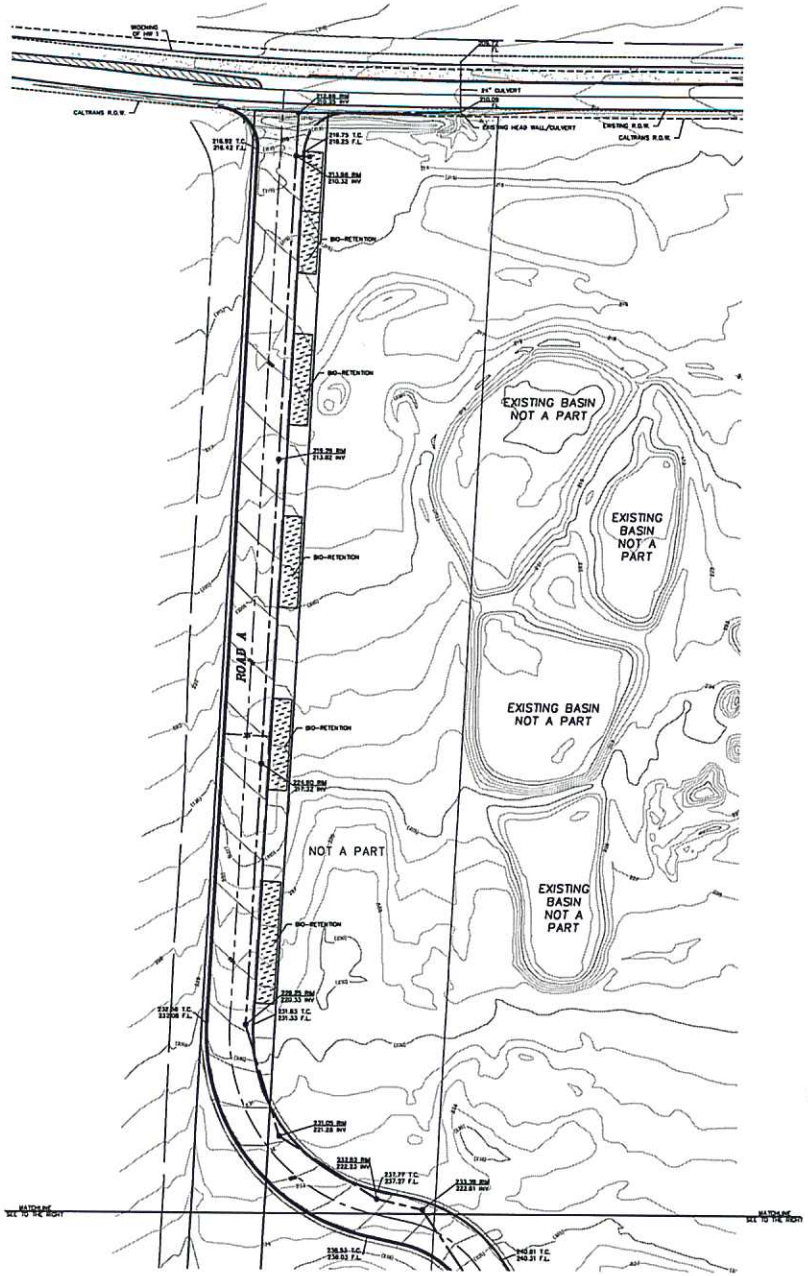
COUNTY OF SANTA BARBARA, CALIFORNIA

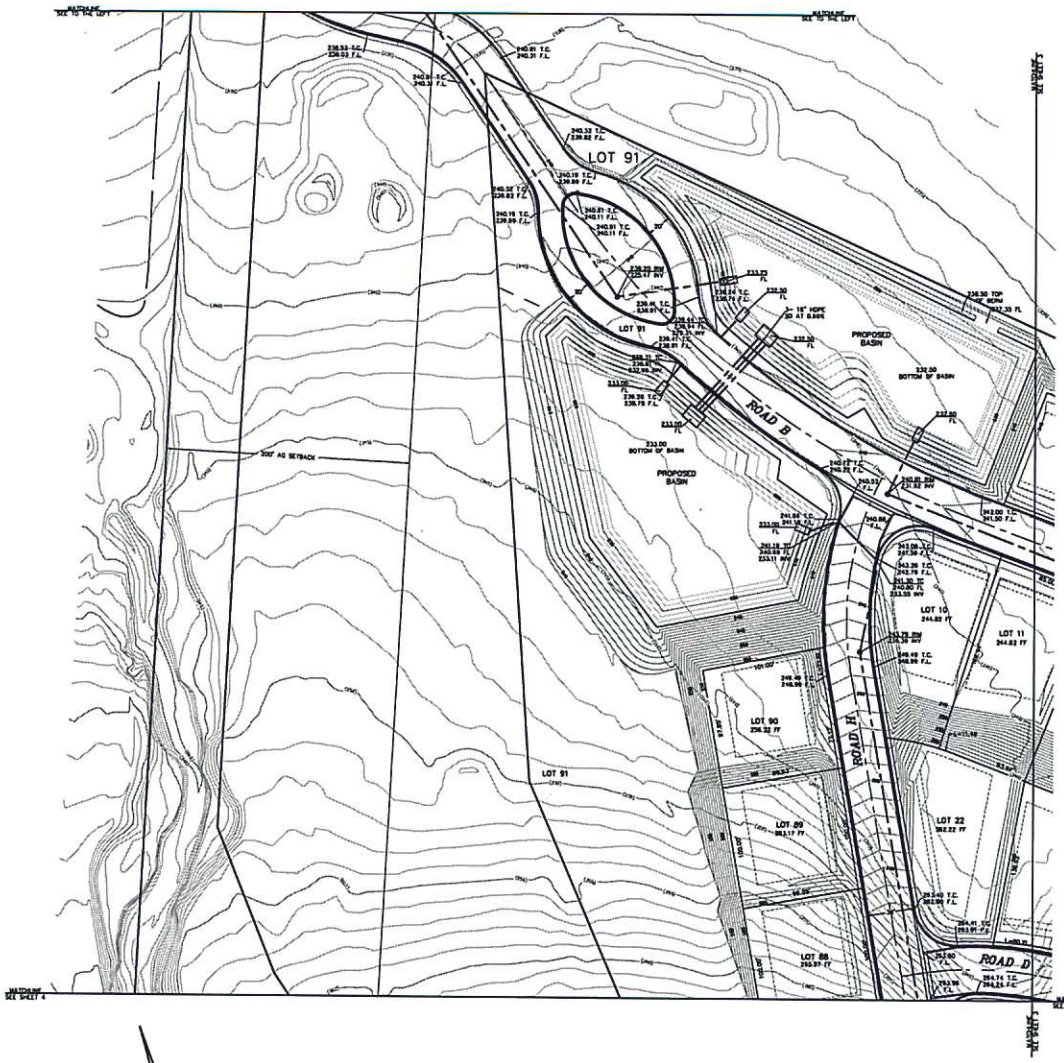
SCALE: AS SHOWN

SHEET 1 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017





GRAPHIC SCALE

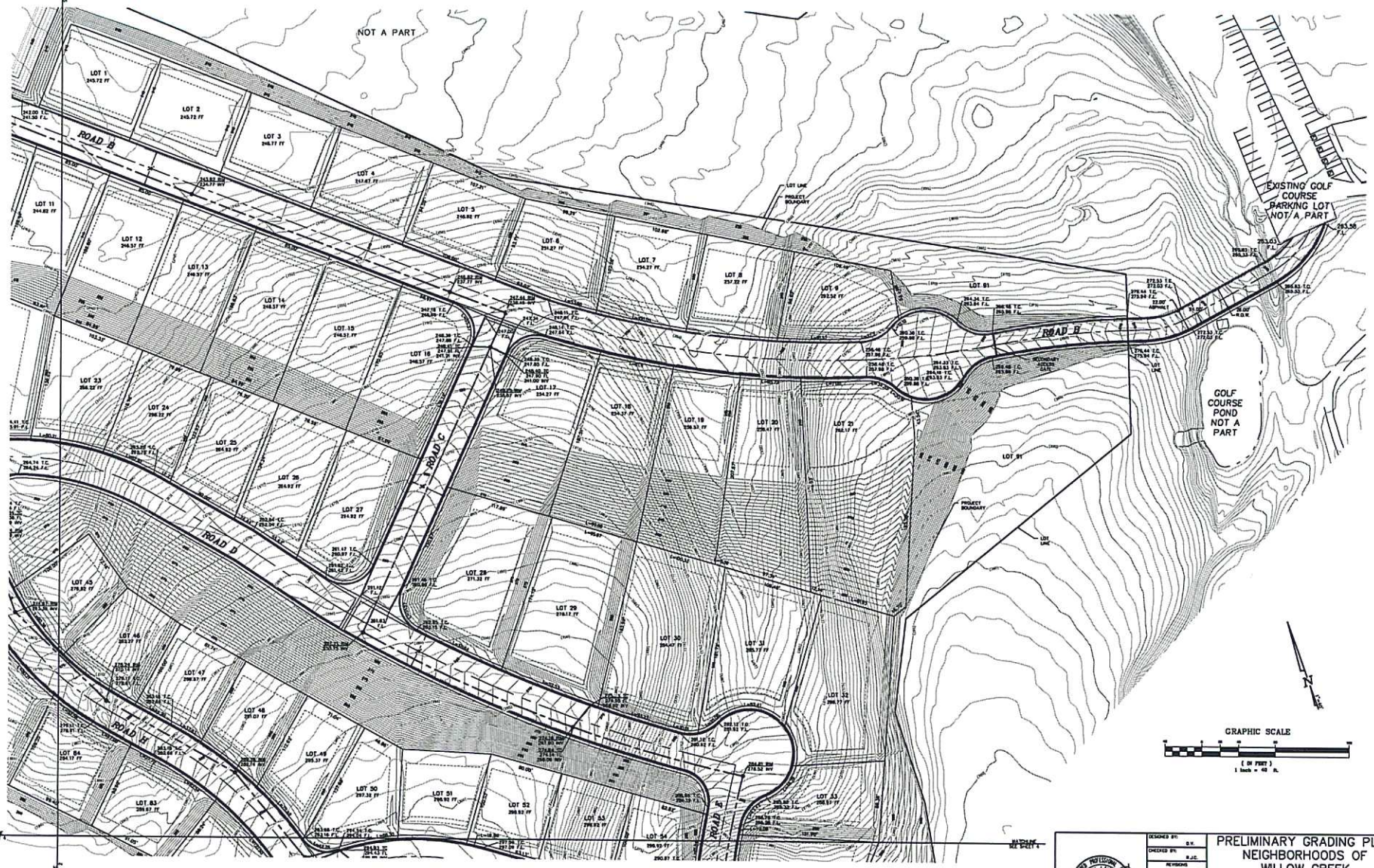
(IN FEET)
1 inch = 40 ft.

10/1/17

DESIGNED BY: D.V.	PRELIMINARY GRADING PLAN NEIGHBORHOODS OF WILLOW CREEK	
CHECKED BY: R.J.C.	COUNTY OF SANTA BARBARA, CALIFORNIA	
REVISIONS		
DATE / DESCRIPTION		
	BETHEL engineering 2524 Airport Dr. Santa Maria, California 93455 (805) 934-5757	SCALE: AS SHOWN
		SHEET 3 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017



DESIGNED BY:	D.K.
CHECKED BY:	B.J.C.
REVISIONS	
DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — BRIAN J. CHANEY — C.E. NO. 39966 — CIVIL — STATE OF CALIFORNIA

10/4/17

PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

PROJECT ENGINEER: B.J.C. 39966 DATE:

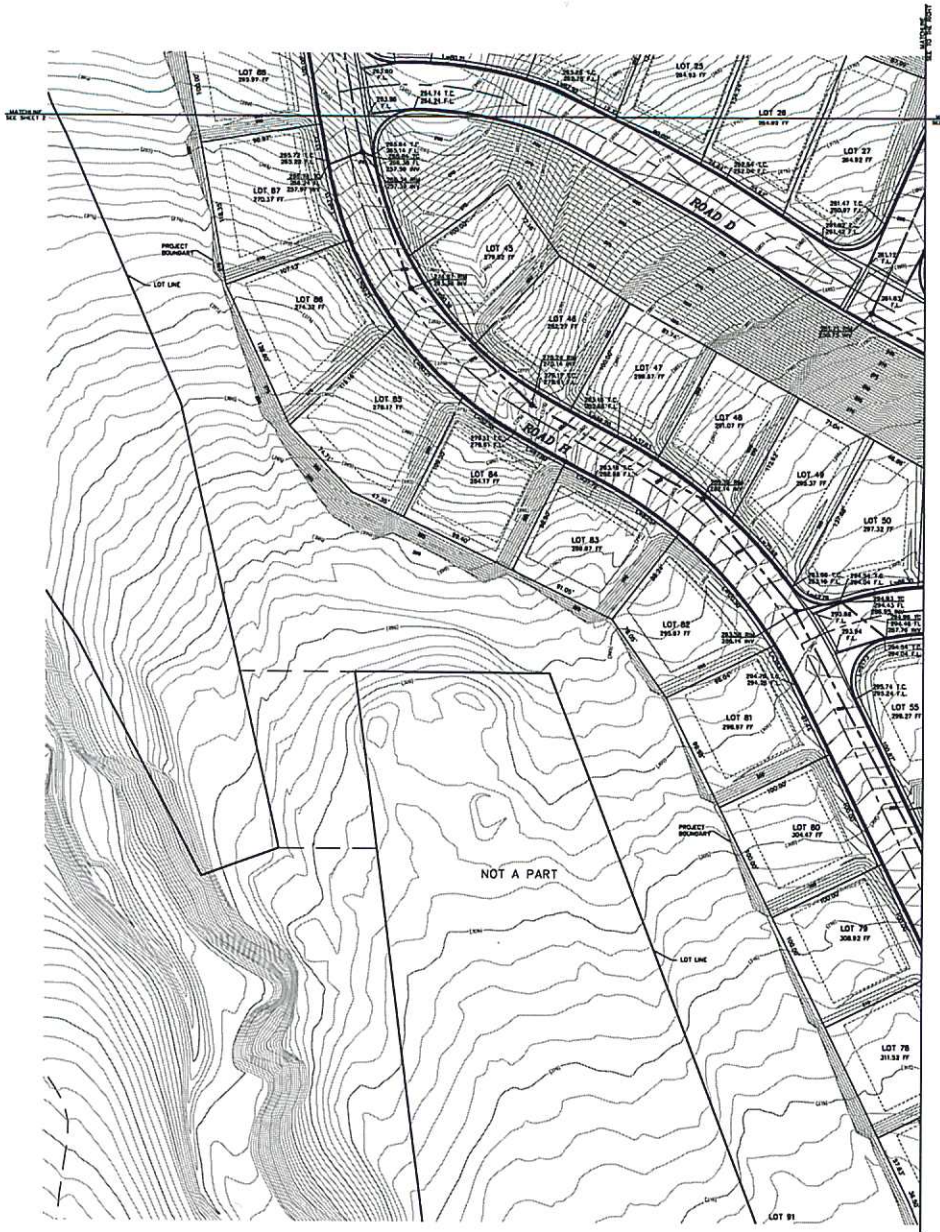
BETHEL engineering
3534 Airport Dr.
Santa Maria, California 93455
(805) 934-3767

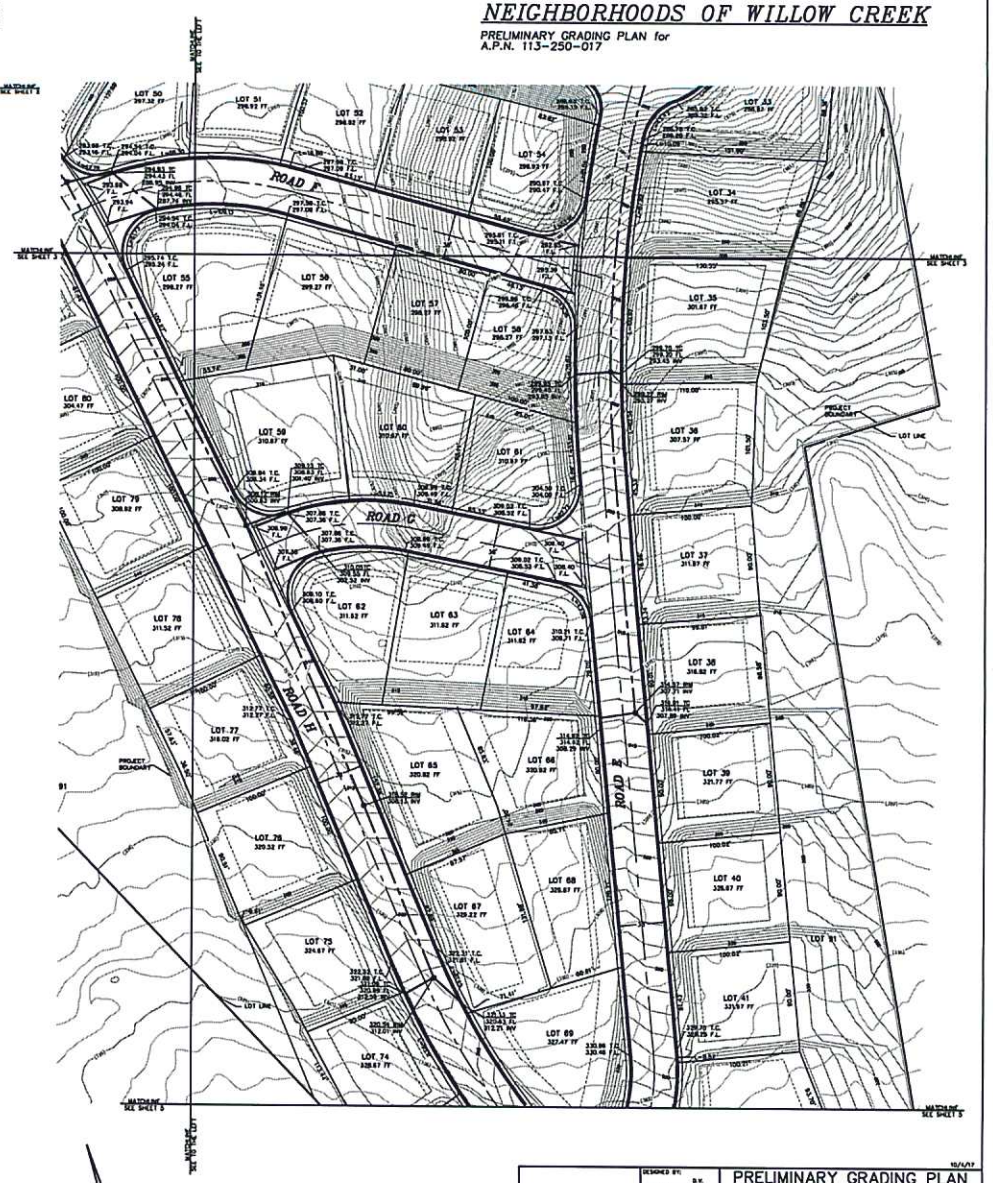
SCALE: AS SHOWN

SHEET 3 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017





GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

DESIGNED BY:	B.K.
CHECKED BY:	B.J.C.
REVISIONS	
DATE	DESCRIPTION

10/6/17

PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

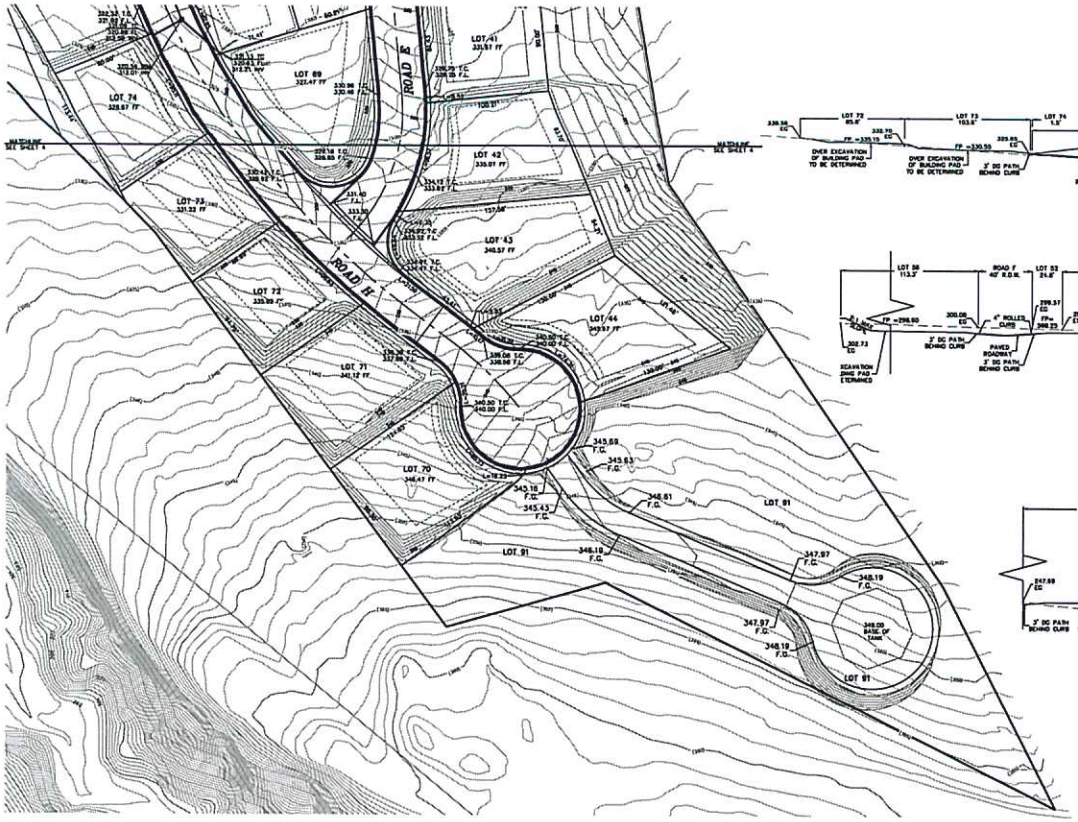
BETHEL engineering
2624 Airport Dr.
Santa Maria, California 93455
(805) 934-3787

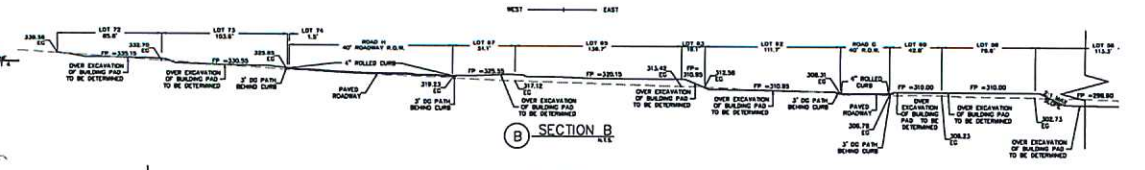
SCALE: AS SHOWN

SHEET 4 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017





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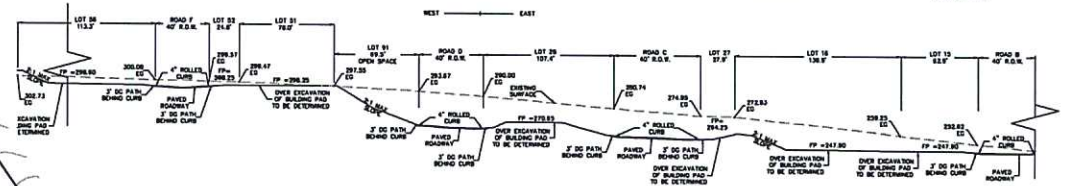
N.T.S.



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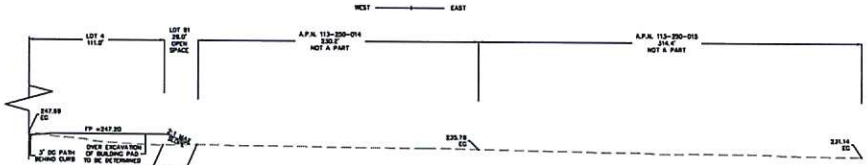
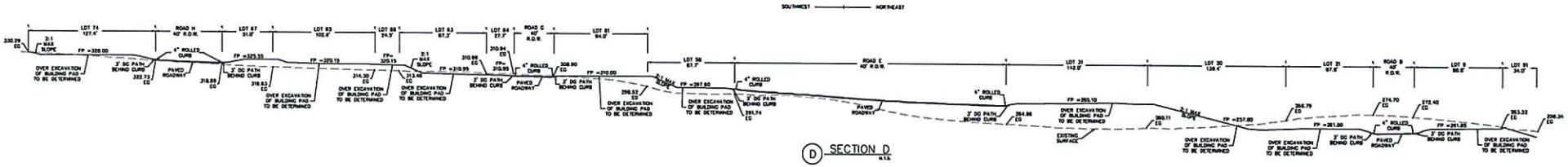


(B) SECTION B
N.T.S.

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.



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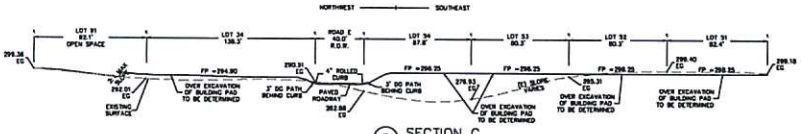


(C) SECTION C
N.T.S.

10/4/17

DESIGNED BY:	D.K.
CHECKED BY:	R.J.C.
REVISIONS	
DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — CIVIL — R. JAMES CAMPBELL — C 36 — STATE OF CALIFORNIA

PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

AUDIT & REVISION: 8/24/2007 DATE:

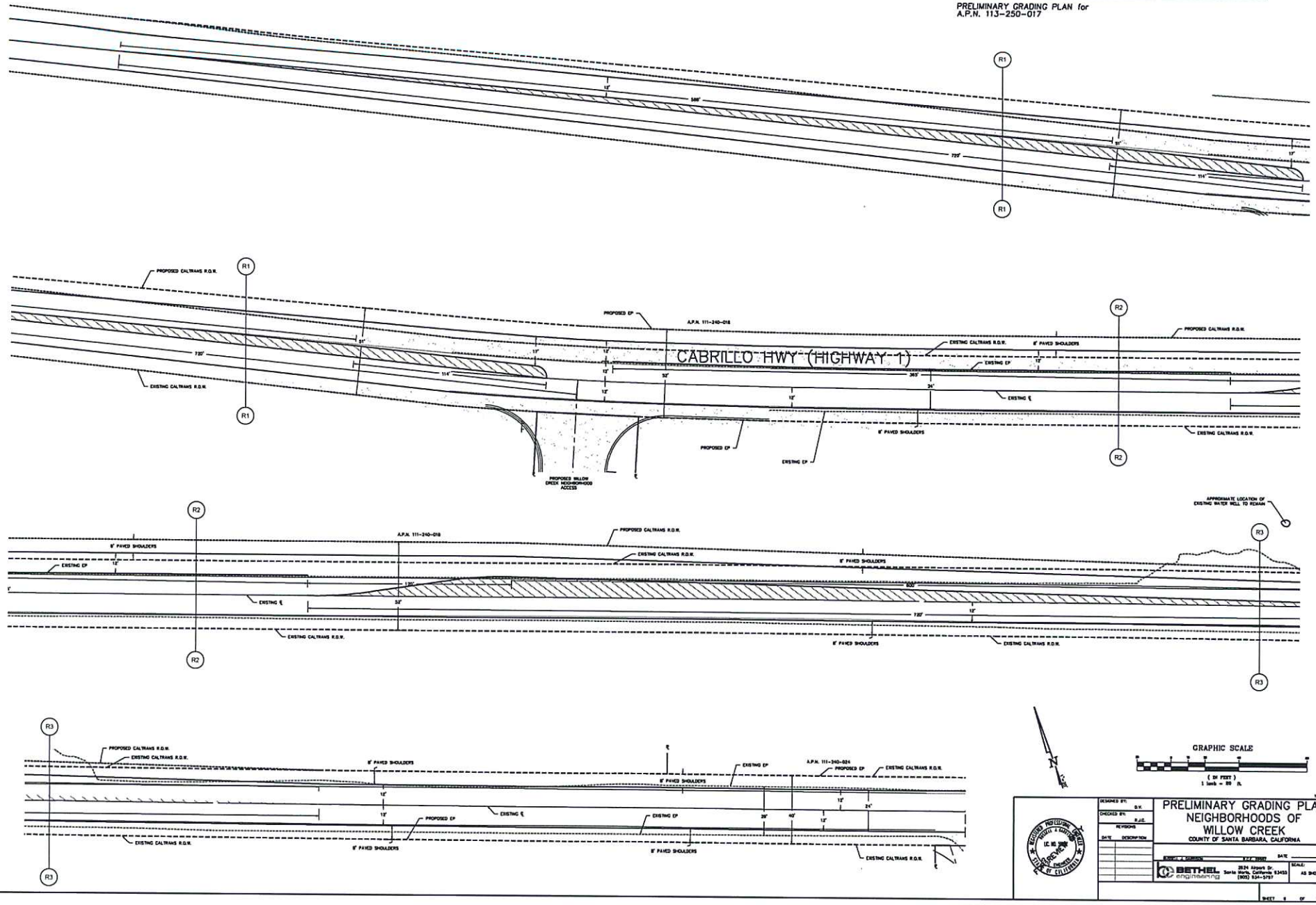
BETHEL engineering
2524 Airport Dr.
Santa Maria, California 93455
(805) 934-3767

SCALE: AS SHOWN

SHEET 5 OF 6

NEIGHBORHOODS OF WILLOW CREEK

PRELIMINARY GRADING PLAN for
A.P.N. 113-250-017



PRELIMINARY GRADING PLAN
NEIGHBORHOODS OF
WILLOW CREEK
COUNTY OF SANTA BARBARA, CALIFORNIA

DESIGNED BY: D.V.
CHECKED BY: R.J.C.
REVISIONS
DATE DESCRIPTION

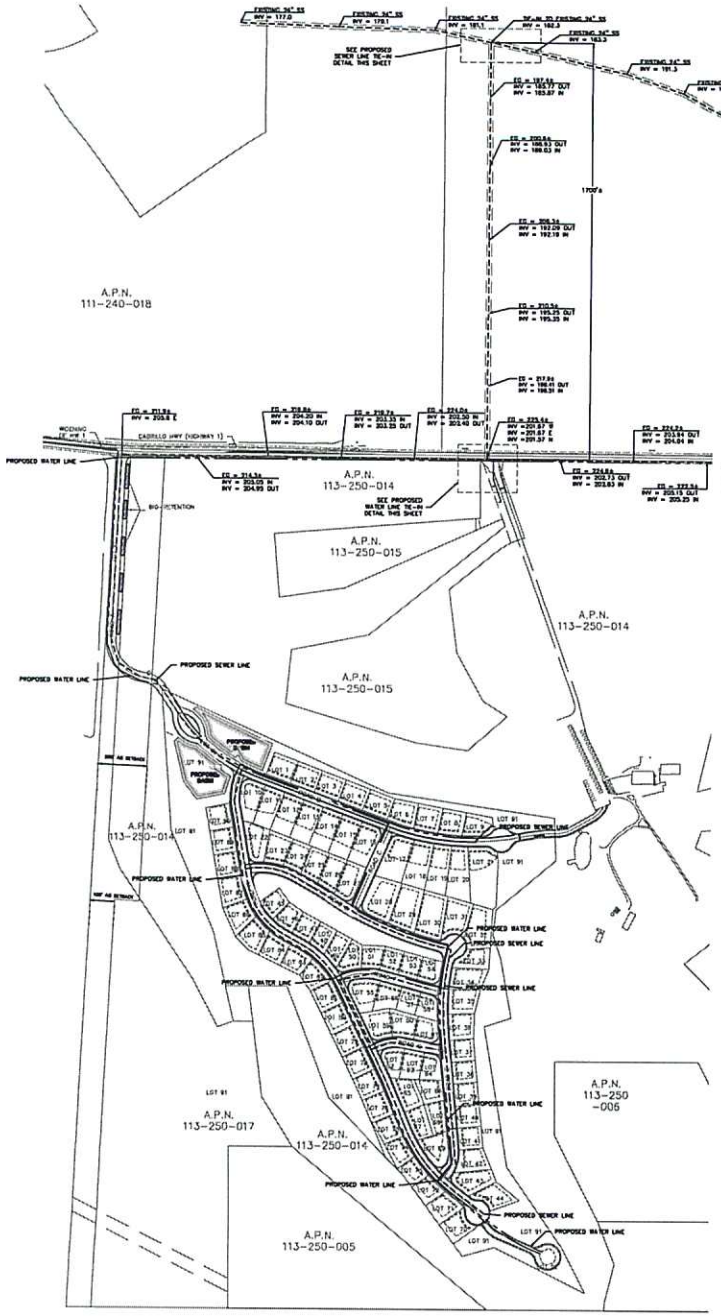
BETHEL engineering
2524 Airport Dr.
Santa Maria, California 93455
(805) 934-5797

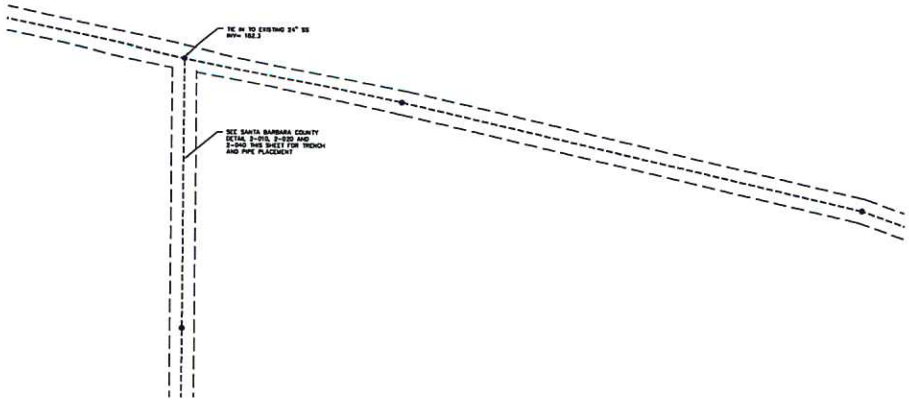
SCALE: AS SHOWN

SHEET 6 OF 7

NEIGHBORHOODS OF WILLOW CREEK

PROPOSED SEWER LINE AND WATER LINE





PROPOSED SEWER LINE TIE-IN
NTS

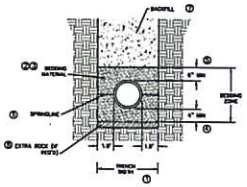
GRAPHIC SCALE

(IN FEET)
1 inch = 800 ft.

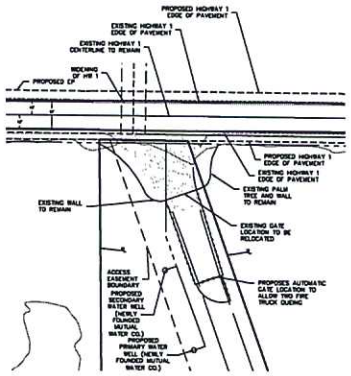
1. CAL-OSHA AND OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH REQUIREMENTS SHALL BE MET FOR ALL TRENCH OPERATIONS
2. TRENCHES SHALL BE EXCAVATED DEEP ENOUGH TO ASSURE AT LEAST 2.5' OF COVER FOR THE UNDERGROUND FACILITY. OVER-EXCAVATION MAY BE REQUIRED TO ACHIEVE A STABLE, EVEN FLOOR IN THE TRENCH, AND EXTRA BEDDING MATERIAL PLACED TO PROVIDE A SUITABLE FOUNDATION FOR THE FACILITY.
3. ALL TRENCH BEDDING MATERIAL SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 19-3.
4. NO PONDING, JETTING, OR FLOODING IS PERMITTED UNDER EXISTING ROADS, IN OTHER AREAS, SUCH METHODS MUST BE APPROVED BY THE COUNTY ENGINEER.
5. ALL UTILITIES SHALL BE INSPECTED, TESTED, AND VERIFIED TO THE COUNTY ENGINEER PRIOR TO PLACEMENT OF TRENCH BACKFILL. STREET IMPROVEMENT PLANS SHALL BE SIGNED BY THE UTILITY COMPANIES AND THE COUNTY FIRE DEPARTMENT.
6. WHEN TRENCHING IS DONE UNDER AN EXISTING UTILITY, THE CONTRACTOR MUST PROVIDE ADEQUATE SUPPORT AND AVOID ANY DISTURBANCE TO THE EXISTING UTILITY. TRENCHING MUST INCLUDE PREPARING A NEW BED FOR THE EXISTING UTILITY AND PERFORMING COMPACTION TESTING.
7. MAXIMUM DENSITY AND OPTIMUM MOISTURE, TESTS MUST BE MADE FOR ALL BACKFILL AND BEDDING MATERIALS EXCEPT CEMENT SLURRY OR 3/4" WASHED CRUSHED ROCK.
8. FOR TRENCHES LESS THAN 6.0' DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, ONE COMPACTION TEST SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
9. FOR TRENCHES 6.0' OR MORE DEEP MEASURED FROM FINISHED GRADE TO FLOOR, TOW COMPACTION TESTS SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.
10. EVERY LATERAL UTILITY TRENCH SHALL BE TESTED FOR COMPACTION AT THE SAME SCHEDULE AS THE MAIN TRENCH.
11. PAVING MATERIAL SHALL BE ASPHALTIC CONCRETE PER 1-010, NOTE 16. IT SHALL BE 6" THICK AFTER COMPACTION.
12. ASPHALT PAVING SHALL BE RESTORED WITH A 'FOG' SEAL IN CONFORMANCE WITH COUNTY SPECIFICATIONS FOR ITS 'FOG' SEAL PROGRAM OF CURRENT DATE. FOG SEALING SHALL EITHER BE
    A. BONDED FOR AND COMPLETED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM THE START OF THE WARRANTY PERIOD, OR
    B. A PAYMENT SHALL BE MADE TO THE COUNTY BASED ON THE COUNTY'S COST TO PERFORM THE FOG SEAL PLUS 15% FOR ADMINISTRATION AND INSPECTION. PAYMENT SHALL BE MADE PRIOR TO THE ENCROACHMENT PERMIT ISSUANCE.
13. WHERE ASPHALT IS SHOWING SIGNS OF DAMAGE OR WEAR, THE COUNTY ENGINEER MAY REQUIRE A TYPE 2 SLURRY SEAL INSTEAD OF 'FOG' SEAL.

SANTA BARBARA COUNTY STANDARD:
2-010 GENERAL TRENCH NOTES

1. TRENCH WIDTH SHALL BE SUFFICIENT TO FULLY ENCLOSE THE PIPE AND ALLOW COMPACTION TESTING AT THE SPRING LINE.
2. BEDDING MATERIAL FOR UTILITY TRENCHES SHALL MEET THE STANDARDS OF THE UTILITY COMPANY OWNER.
3. BEDDING MATERIAL FOR HDPE, RCP AND CMP SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATION AND SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. FILL MUST BE PLACED IN LIFTS NO LARGER THAN 8" TO FACILITATE COMPACTION. FOR CMP PIPE, THE BEDDING MATERIAL SHALL BE TESTED FOR MOISTURE.
4. THE THICKNESS OF THE LAYER OF BEDDING UNDER THE PIPE SHALL BE AT LEAST 4" OR 10% OF THE PIPE DIAMETER, WHICHEVER IS LARGER.
5. BEDDING MATERIAL SHALL BE COMPLETELY COVER THE PIPE TO MINIMUM HEIGHT OF 6" AFTER COMPACTION.
6. CARE MUST BE TAKEN TO PLACE THE BEDDING EVENLY UNDER THE LENGTH OF THE PIPE TO ASSURE ADEQUATE SUPPORT. COMPACTION TESTING IS REQUIRED AT THE SPRINGLINE OF THE PIPE WHEN SAND IS USED AS BEDDING MATERIAL.
7. BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD 2-530 AND 2-040
8. SEE NOTE 2 ON 1-010

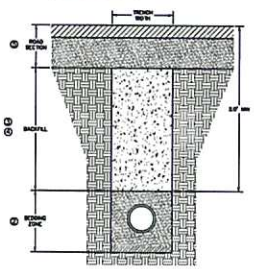


SANTA BARBARA COUNTY STANDARD:
2-020 PIPE BEDDING DETAILS NTS

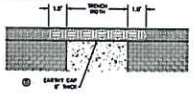


PROPOSED WATER LINE TIE-IN
NTS

DETAIL A: NEW ROADS



DETAIL B: SHOULDER AREAS



1. ALL TRENCH WORK FOR NEW ROADS AND FOR SHOULDERS WITHIN 3.0' OF PAVEMENT SHALL COMPLY WITH THIS STANDARD.
2. BEDDING DETAILS SHALL COMPLY WITH SBCO STD. 2-020.
3. TRENCH BACKFILL SHALL BE NATIVE, IMPORT, OR A MIXTURE OF THE TWO, FREE OF ORGANIC MATTER AND DEBRIS, AND WITH NO ROCKS OR CLUMPS LARGER THAN 2" WITH A SAND EQUIVALENT VALUE OF 20 OR GREATER.
4. FILL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
5. REFER TO SECTION 8 FOR THICKNESS OF THE ROAD SECTION.
6. EARTHY MATERIAL SHALL MEET THE REQUIREMENTS OF SBCO STD. 2-030.

SANTA BARBARA COUNTY STANDARD:
2-040 TRENCHES FOR NEW ROADS NTS

10/6/17

BETHEL engineering
2524 Airport Dr. Santa Maria, California 93455 (805) 934-3767

REGISTERED PROFESSIONAL ENGINEER — LIC NO. 74864 — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:	D.K.
CHECKED BY:	R.J.G.
REVISIONS	
DATE	DESCRIPTION

PROPOSED SEWER AND WATER LINES FOR NEIGHBORHOODS OF WILLOW CREEK

COUNTY OF SANTA BARBARA, CALIFORNIA

DATE

SCALE: AS SHOWN

SHEET 7 OF 7

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor

RECEIVED
APR 06 2018
S.B. COUNTY (NORTH)
PLANNING & DEVELOPMENT

April 3, 2018

Dana Eady
Santa Barbara County
624 W. Foster Road, Suite C
Santa Maria, CA 93455

RE: SCH#2018031077 Neighborhoods of Willow Creek & Hidden Canyon, Santa Barbara County

Dear Ms. Eady,

The Native American Heritage Commission has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    - **a.** A brief description of the project.
    - **b.** The lead agency contact information.
    - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
    - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
    - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    - **a.** Alternatives to the project.
    - **b.** Recommended mitigation measures.
    - **c.** Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    - **a.** Type of environmental review necessary.
    - **b.** Significance of the tribal cultural resources.
    - **c.** Significance of the project's impacts on tribal cultural resources.
    - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
    - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions, please contact me at my email address: frank.lienert@nahc.ca.gov

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

cc: State Clearinghouse

Chris Bersbach

From: kerry@adambros.com
Sent: Friday, April 06, 2018 11:27 AM
To: Eady, Dana
Subject: Willow Creek and Hidden Canyon Projects

Follow Up Flag: Follow up
Flag Status: Flagged

Good Morning Ms. Eady,
I am a member of Iceberg Holding, LLC ("Iceberg"), the owner of the property immediately across Highway 1 from the property upon which the Willow Creek and Hidden Canyon Projects (the "Project") will be constructed. We have a few concerns and questions about the Project.

Our first concern relates to road access and traffic flow control, both now and in the future. If traffic increases (and, particularly, when Union Valley Parkway is extended in the future), will the ingress and egress of this Project cause issues with an eventual signaled intersection? As other sites develop in that area (both behind the Project and North of Highway 1), is there a long term road plan that is being considered? If so, can you please email me (a) a copy of that road plan, and (b) a proposed site map that shows the proposed ingress and egress to Highway 1 from the Project?

Second, due to the construction of so many new homes, water runoff will certainly increase. Highway 1 already floods in that general area. This additional drainage will necessarily flow across Highway 1 to the Iceberg property to the north. Is CALTrans going to improve the drainage? Does the developer have any plans to enlarge the existing drainage pipe on Iceberg property to be able to handle this extra water and avoid flooding damage to crops planted on the Iceberg property?

Our final issue relates to the sewer easement location that goes across Highway 1 and across Iceberg property to the main sewer trunk line. Is that line being sized large enough to handle future development either north or south of the Project?

Thank you for your responses to these important questions and comments.

Sincerely,
Kerry Adam
Office: (805) 925-0339

Jim Byrne

321 E. Inger Drive, Unit G-58• Santa Maria, CA 93454 • Phone: 805-598-3993 •
E-Mail: jimbyrne.wx@gmail.com

Date: April 17, 2018

Santa Barbara County Planning Commission
Re: Proposed Housing Development at Rancho Maria Golf Course

Dear: Commissioner's:

It has recently come to my attention that plans are being considered to develop a 146-unit housing development with associated utilities and roadway construction at Rancho Maria Golf Course. As an avid golfer, current Men's Club member, Past President of the Rancho Maria Men's Golf Club and nearly 20-year resident of the Santa Maria Valley, I am saddened to hear the news and request that you seriously reconsider any approval for such a project.

As a former resident (and native) of the Bay Area I watched the little valley I grew up in (very similar to our own pastoral Santa Maria Valley) with it's rolling foothills dotted with oaks and native plant species patrolled in the air by Hawks, Owls and the occasional Eagle...and on the ground by Foxes, Coyotes, and Bobcats...get overrun by development which over time transformed the beautiful, peaceful landscape into an overcrowded, polluted transit corridor that now endures the inherent big-city problems such as crime, traffic congestion, higher taxes and a burden on the region's precious natural resources. I don't want to see our beautiful corner of the world, follow suit.

For over 50+ years the O'Keefe's and a few others have preserved and protected the idyllic setting along the foothills adjacent to Hwy.1, while providing for an economical and enjoyable place to play golf. They have been great stewards of the land. With increasing economical constraints putting many golf courses out business, (including Dairy Creek GC in San Luis Obispo, leaving San Luis Obispo without an 18-hole public golf course), Rancho Maria has endured and is the ONLY golf course in the Santa Maria Valley. Residents from all over the region (including many Canadian's who escape the winter chill) go there to play while enjoying its tranquil natural setting without the noise, traffic and pollution of big city development.

As a former Construction and Grading Inspector for a Geotechnical Consulting firm in the Bay Area, I am very aware of the inherent problems, and significant impacts such a development would bring to the golf course and the surrounding area. Such impacts would be...and not limited to:

1. A protracted period of Noise and Dust pollution with construction and supportive activities.

2. Increased (and potentially dangerous) traffic, both construction and vehicular, leading to delays and potential liability issues.

3. Potential (and controversial) eminent domain issues with the golf course and surrounding neighbors arising from the need for roadway expansion if the proposal is carried out.

4. The potential loss of play (and subsequent revenues) due inconveniences caused by construction activities, delays and impacts.

5. Major alterations to the course layout and design.

6. Wildlife habitat disruption and possible relocation.

7. A significant and potentially adverse strain on local well water supplies

Also, there are always significant and unforeseen issues that arise during such an undertaking.

I, like many others, are proud to call Rancho Maria my home golf course. It truly is a great location to "escape" and enjoy the local beauty of the surrounding hillsides while participating in the game many of us love. I believe the proposed development will bore out too steep of a cost to the Rancho Maria Golf course...and community. It is my hope and desire the commission takes the time to weigh the circumstances and move to deny approval of the proposed development.

Thank you for your time and consideration.

Sincerely,

Jim Byrne
(Avid golfer and Santa Maria Valley resident)

4/18/2018

To whom it may concern,

As a golfer who frequents Rancho Maria Golf Course, I have been following the proposed project of 146 homes to surround the course and have some concerns.

Rancho Maria was not designed to have homes on it, or to have the roads for said homes running through the course. Adding access roads throughout the course is going to slow down the pace of play as well as be a safety concern for golfers and pedestrians. I have played many community golf courses surrounded by beautiful residential homes, but they were designed and built together so each is an asset to the other.

Rancho Maria Golf Course is a pleasure to play, because there are no houses, leaving beautiful unobstructed views of surrounding hills to enjoy. The natural environment is home to many animals and wildlife. The deer, bobcats, mountain lion, quail, hawks all use the golf course lakes and fairways for food and water, these would all be greatly and negatively affected should houses be built. Removing trees surrounding the course would destroy the habitat of birds and wildlife. With so many trees already being trimmed and/or removed due to disease, we cannot afford to lose any more trees.

Highway 1 is a narrow two lane highway with almost no shoulder or bike lanes. That doesn't stop many bicyclist from using the picturesque highway for their runs. Farm trucks slowly navigate the road to transport equipment and produce back and forth from fields to town. Adding traffic for 146 homes and the construction of those homes, I feel, would greatly impact the safety of anyone using Hwy 1 in that area. I feel it would truly be an accident waiting to happen.

The concerns above are only a few of the many thoughts I have regarding homes being built on a beautiful, rural and quiet setting which is home to Rancho Maria Golf Course. People come to enjoy a game of golf in the fresh air and take in a little bit of nature. I believe the course should be preserved for the future of our community.

Sincerely,

Mike Zeilman

April 22, 2018

Laurel Fisher Perez, AICP
Santa Barbara Co. Planning Dept.
624 Foster Rd.
Santa Maria, CA 93455

Subject: Proposed Residential Units at Rancho Maria Golf Club

My name is Reese N. Riddiough and I was employed by the City of Santa Maria for 25 years, the last 23 (1972-1995) as Public Works Director. At that time the Public Works Director was responsible for buildings, engineering, fleet, streets, sewer, storm drainage, solid waste collection & disposal, water and wastewater disposal and during my employment the city's population increased from 30,000+ to 80,000+.

I am opposed to this development for the following reasons.

First, this proposal is an "isolated unincorporated spot development" being in excess of one mile from the nearest urban development. This proposal is very similar to the "unincorporated Tanglewood area development" that was allowed in the 1950-60's. During my years of employment, numerous requests were made to various city staff, representatives during consideration of adjacent lands for annexation, to consider annexing the Tanglewood area. However, this was not favorably considered due to its remote location which made the cost of public services, including fire and public safety, higher than the tax revenues received.

Second, I have been a golfer for over 60 years, including four years on high school golf teams. This proposal would be devastating to the existing natural beauty of the Rancho Maria Golf Club and surrounding area due to:

*lack of buffer between homes and active golf play.
*access roads through the golf course.
*State highway #1 is a narrow 2-lane road with no shoulders which allows bicycle and agricultural oriented traffic which would be severly impacted.
*relocation of greens, fairways, tee boxes and installation of tall fence netting.

Third and last, this development should not be served by local well water because the Santa Maria Valley ground water basin is in a slight overdraft situation or at best is in balance. Instead, like some other developments in the unincorporated area of the SM Valley, outside supplemental water need be obtained.

Reese N. Riddiough, PE
1020 David Rd.
Santa Maria, CA 93455

cc: Peter Adam, 4th District Bd. of Supervisors
Steve Lavagnino, 5th District Bd. of Supervisors
Mike O'Keefe, Director of Golf, RMGC

SUZANNE ELLEDGE
PLANNING & PERMITTING
SERVICES, INC.

April 24, 2018

Santa Barbara County
Planning and Development
Ms. Dana Eady, County Planner
624 W. Foster Road,
Santa Maria, CA 93455

Subject: County EIR Scoping; The Neighborhoods of Willow Creek & Hidden Canyon Proposed Residential Development; Case Nos. 16SPP-00000-00001, 16DVP-00000-00008, 16TRM-00000-00003, 16TRM-00000-00004, 16CUP-00000-00033, 16RDN-00000-00002

Dear Ms. Eady:

We attended the EIR Scoping Meeting on April 18th on behalf of Rancho Maria Golf Club and provided comments at the meeting that were not specifically addressed in our comment letters submitted to the County on March 6, 2018. This letter summarizes those additional comments we provided at the County's EIR Scoping Meeting.

Comments on EIR Scoping Paper Dated March 27, 2018

Aesthetic/Visual Resources: Within "Scope of EIR" please include project impacts to public views from the public golf course and from any nearby public trail easements, including the Coastal Trail along State Highway 1. Please include an assessment of all visible project components including the proposed residences, water storage tanks, 60-foot tall safety fence, and well water treatment facility.

Air Quality: Within "Scope of EIR" please include an assessment of project impacts on the golf course related to air quality and dust during both project construction and the long-term.

Biological Resources: Under "Sources of Information" please include the Storrer Environmental letter dated January 31, 2018 and referenced citations.

Noise: Within "Scope of EIR" please include an assessment of noise impacts from the project on the golf course, which is considered to be a sensitive receptor, both during project construction and the long-term.

PRINCIPAL PLANNERS: SUZANNE ELLEDGE • LAUREL F. PEREZ
MAIL: PO BOX 21522, SANTA BARBARA, CA 93121 • OFFICE: 1625 STATE ST., SUITE 1, SANTA BARBARA, CA 93101 • TEL: 805 966-2758 • FAX: 805 966-2759

Recreation: Under "Sources of Information" please include the letters RMGC has submitted to the County as sources of information (letters dated 3/20/17, 9/13/17, 9/22/17, 3/6/18); these letters specifically address the project impacts to the golf course, a public recreational resource.

Transportation/Circulation: Within "Scope of EIR" please include an analysis of the project traffic, circulation and related safety impacts on the golf course caused by the three (3) new access roads proposed along State Highway 1, plus the proposed utilization of the golf course parking lot and access driveway for secondary access from the project site.

Water Resources: Under "Sources of Information" please include the Nossaman letter dated March 5, 2018 to the list of sources.

As stated at the Scoping Meeting, we ask that copies of the EIR Scoping Letters we submitted to the County on March 6, 2018 (Seltzer, SEPPS, Nossaman, and Storrer Environmental) be provided to the EIR consultants as sources of information for use in preparation of the Draft EIR.

Once again, we appreciate the opportunity to provide comments specific to the scope of the County's EIR for the "The Neighborhoods" residential development project. We look forward to the review of the Draft EIR. Please let us know if you have any questions or require additional information.

Sincerely,
SUZANNE ELLEDGE
PLANNING & PERMIT PROCESSING SERVICES, INC.

Laurel Fisher Perez, AICP
Principal Planner

Cc: Board of the Rancho Maria Golf Club

FROM THE DESK OF
ANTHONY E. WELLS
124 WEST MAIN ST., SUITE G, SANTA MARIA, CA. 93458

APRIL 24, 2018

MRS. DANA EADY
SANTA BARBARA COUNTY PLANNING & DEVELOPMENT
FOSTER ROAD,
SANTA MARIA, CA. 93455

RE; THE NEIGHBORHOODS PROJECT

DEAR MRS. EADY

THE PRIMARY CONSULTANT FOR RANCHO MARIA GOLF CLUB'S BOARD OF DIRECTORS MADE A STATEMENT AT THE RECENT EIR SCOPING MEETING THAT THE "RANCHO MARIA GOLF COURSE IS A MAJOR SOURCE OF RECREATION FOR THE COMMUNITY". SHE ATTEMPTED TO MAKE IT SOUND AS THOUGH HOUSING SURROUNDING THE COURSE MIGHT AFFECT THIS REGIONAL RECREATIONAL FACILITY.

LET'S LOOK AT THE FACTS; THE RANCHO MARIA GOLF CLUB IS A BUSINESS. IT SELLS PLAYING TIME TO THE AREA'S GOLFING COMMUNITY. AS A BUSINESS THE RANCHO MARIA OPERATION INCLUDES A RESTAURANT, OPEN TO THE PUBLIC, SERVING WINE, BEER AND COCKTAILS. IT'S SHOP SELLS CLOTHING, SHOES, HATS, GOLF CLUBS AND BAGS. THE ENTIRE OPERATION IS A FOR PROFIT BUSINESS THAT SUPPORTS A NUMBER OF FAMILIES.

ACCORDING TO THE NATIONAL GOLF COURSE ASSOCIATION ONLY 7.3% OF CALIFORNIA'S POPULATION ACTUALLY PLAYS GOLF. BEING THAT SANTA MARIA AND ORCUTT COMBINED HAVE A POPULATION OF APPROXIMATELY 150,000 THAT MEANS THAT ONLY APPROXIMATELY 10,500 RESIDENT PLAY GOLF IN THE AREA. TAKING INTO CONSIDERATION THAT THE CITY OF SANTA MARIA'S PRIMARY POPULATION IS, IN MANY CASES AT OR BELOW THE HOUSEHOLD INCOME LEVEL THAT CAN AFFORD TO PLAY GOLF. 50% OF THE SANTA MARIA'S HOUSEHOLDS EARN LESS THAN $50,000 PER YEAR. THIS DRAMATICALLY ALTERS THE DYNAMICS OF THE AREA'S GOLFING POPULATION.

44% OF GOLFERS ACTUALLY PLAY FEWER THAN 10 TIMES PER YEAR WHICH INDICATES THAT THERE ARE ONLY ABOUT 6,930 GOLFERS BASED ON150,000 RESIDENTS, HOWEVER, THIS AMOUNT OF THE GOLFING POPULATION IS SPLIT BETWEEN FIVE GOLF COURSES IN SURROUNDING COMMUNITIES. I WOULD HARDLY CALL THIS A MAJOR RECREATIONAL FACILITY SERVING THE COMMUNITY. WALLER PARK IS A MAJOR RECREATIONAL FACILITY SERVING THE COMMUNITY AND NOT JUST CUSTOMERS.

THE ABOVE STATED GOLF STATISTICS WERE DERIVED FROM A RECENT SURVEY AND PUBLICATION OF THE NATIONAL GOLF FOUNDATION.

Appendix B

Air Quality Analysis Technical Report

AIR QUALITY ANALYSIS TECHNICAL REPORT
for
The Neighborhoods of Willow Creek & Hidden Canyon

Prepared for:

Orcutt Rancho, LLC
124 W. Main Street
Santa Maria, CA 93458
Contact: Tony Wells, Project Manager
805.922.9129

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JANUARY 2019

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TABLE OF CONTENTS

Section **Page No.**

ACRONYMS AND ABBREVIATIONS ..... **V**

EXECUTIVE SUMMARY ..... **VI**

1 INTRODUCTION **1**
1.1 Report Purpose and Scope 1
1.2 Regional and Local Setting 1
1.2.1 Regional Location 1
1.3 Proposed Project Description 2

2 ENVIRONMENTAL SETTING **7**
2.1 Climate and Topography 7
2.2 Pollutants and Effects 7
2.2.1 Criteria Air Pollutants 7
2.2.2 Non-Criteria Air Pollutants 11
2.3 Sensitive Receptors 12

3 REGULATORY SETTING **14**
3.1 Federal Regulations 14
3.1.1 Criteria Air Pollutants 14
3.1.2 Hazardous Air Pollutants 14
3.2 State Regulations 15
3.2.1 Criteria Air Pollutants 15
3.2.2 Toxic Air Contaminants 17
3.3 Local Regulations 18
3.3.1 San Barbara County Air Pollution Control District 18

4 REGIONAL AND LOCAL AIR QUALITY CONDITIONS **22**
4.1 South Central Coast Air Basin Attainment Status 22
4.2 Local Ambient Air Quality 23

5 SIGNIFICANCE CRITERIA AND METHODOLOGY **26**
5.1 Thresholds of Significance 26
5.1.1 CEQA Guidelines 26
5.1.2 County of Santa Barbara Environmental Thresholds 26
5.2 Approach and Methodology 28
5.2.1 Construction 28
5.2.2 Operation 31

6 IMPACT ANALYSIS 33
6.1 Would the project conflict with or obstruct implementation of the applicable air quality plan 33
6.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? 34
6.3 Would the project expose sensitive receptors to substantial pollutant concentrations? 37
6.4 Would the project create objectionable odors affecting a substantial number of people? 38
6.5 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? 39
7 REFERENCES CITED 41
8 LIST OF PREPARERS 44

APPENDIX

A Detailed Calculation Tables

FIGURES

1 Regional and Vicinity Map 5
2 Site Plan 6

TABLES

1 Ambient Air Quality Standards 15
2 SCCAB Attainment Classification 22
3 Local Ambient Air Quality Data 23
4 Construction Phasing Assumptions 29
6 Estimated Annual Construction Criteria Air Pollutant Emissions 35
7 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions 36

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	carbon monoxide
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutant
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
PM_{10}	coarse particulate matter (aerodynamic diameter ≤10 microns)
$PM_{2.5}$	fine particulate matter (aerodynamic diameter ≤2.5 microns)
RTP	Regional Transportation Plan
ROC	reactive organic compound
SBCAPCD	Santa Barbara County Air Pollution Control District
SBCAG	Santa Barbara County Association of Governments
SCCAB	South Central Coast Air Basin
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAC	toxic air contaminant
VOC	volatile organic compound

EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential air quality emissions impacts associated with implementation of the proposed Neighborhood Specific Plan (proposed project). Impacts were evaluated for their significance based on the County of Santa Barbara (County) Significance Determination Thresholds and utilized Santa Barbara County Air Pollution Control District (SBCAPCD) numeric thresholds where applicable.

Project Overview

The proposed project consists of two Vesting Tentative Maps and a Specific Plan to allow for development of 146 single-family dwelling units to address the residential component of Key Site 21. The total project area is approximately 189 acres. The new land uses proposed for the Neighborhoods Specific Plan Area includes housing, a public trail, open space, and two single-family residential Neighborhoods: Hidden Canyon and Willow Creek. The 123-acres of open space will consist of 26.8 acres of managed open space and 97 acres of undisturbed open space.

Air Quality

The air quality impact analysis evaluates the potential for significant adverse impacts to the ambient air quality due to construction and operational emissions resulting from the proposed project.

Air Quality Plan Consistency

Implementation of the proposed project would not exceed the demographic growth forecasts in the Santa Barbara County Association of Governments Regional Transportation Plan, and would be consistent with the SBCAPCD's 2016 Ozone Plan. In addition, the proposed project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. The analysis concludes that the daily construction emissions would not exceed the

County's guidelines for criteria air pollutants, and impacts during construction would be less than significant.

Operational Criteria Air Pollutant Emissions

Operational criteria air pollutant emissions were also estimated to be below the County's significance thresholds; therefore, impacts during project operations would be less than significant. As the proposed project would not result in project-specific impacts, the proposed project would also not result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is nonattainment under an applicable federal or state ambient air quality standard.

Exposure of Sensitive Receptors

Diesel equipment utilized during construction would be subject to the California Air Resources Board Airborne Toxic Control Measures for in-use off-road diesel fleets, which would minimize diesel particulate matter emissions during construction. No residual toxic air contaminants (TAC) emissions or corresponding cancer risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the proposed project. Therefore, the exposure of sensitive receptors to project-related TAC emission impacts would be less than significant. Accordingly, the project is not anticipated to result in emissions that would exceed the SBCAPCD Board-adopted health risk notification thresholds.

Odors

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and from excavated sediment. These odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Cumulative Impacts

The nonattainment status of regional pollutants is a result of past and present development, and the SBCAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As discussed above, the proposed project would

not exceed the SBCAPCD significance thresholds during construction or operation; therefore, the proposed project would have a less than significant cumulative impact.

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality emissions impacts associated with implementation of the proposed Neighborhoods Specific Plan Project (proposed project). Impacts are evaluated for their significance based on the Santa Barbara County Planning and Development enumerated air quality thresholds and is based on the emissions-based guidance significance thresholds recommended by the Santa Barbara County Air Pollution Control District (SBCAPCD).

This introductory chapter provides a description of the proposed project and the project location. Chapters 2 and 3, Environmental Setting and Regulatory Setting, describe the air-quality-related environmental and regulatory setting. Chapter 4 describes the existing air quality conditions, and Chapter 5 presents the thresholds of significance and analysis methodology. Chapter 6 provides an air quality impact analysis per the County of Santa Barbara Guidelines. Chapter 7, References Cited, includes full citations for the references cited in the report. Section 8, List of Preparers, includes a list of those who prepared this technical report.

1.2 Regional and Local Setting

1.2.1 Regional Location

The project site is located on Highway 1 approximately 2 miles west of Old Town Orcutt between the intersection of Black Road to the west and Solomon Road to the east in the northwestern portion of the Orcutt Community Plan area (and is a part of a 340-acre site known as Key Site 21). The project site is located in the Third Supervisorial District and consists of approximately 189 acres. Figures 1 and 2 show the project location within the County of Santa Barbara and the site plan. The project is located southwest of Santa Maria. Regionally, the City of Santa Maria is situated in northern Santa Barbara County, about 55 miles north of Downtown Santa Barbara via Highway 154 (CA-154).

The proposed project is located within the South Central Coast Air Basin (SCCAB) and is within the jurisdictional boundaries of the Santa Barbara County Air Pollution Control District (SBCAPCD). The SCCAB and the SBCAPCD are discussed further in Chapter 2, Environmental Setting, and Chapter 3, Regulatory Setting, respectively.

1.3 Proposed Project Description

The proposed project consists of a General Plan Amendment to the Land Use Element, Zone Change to S-P Zone, a Vesting Tentative Map and Specific Plan to allow for development of the 146 single-family dwelling unit project. The total project area is approximately 189 acres. The land uses proposed for the Neighborhood Specific Plan Area includes open space system, a public trail, biological protection, and two single-family residential neighborhoods described as follows:

- Willow Creek will contain 90 homes, approximately 14 acres of landscaped open space and approximately 37 acres of undisturbed open space. Primary vehicular access would be provided via one proposed private road off State Route 1.
- Hidden Canyon will contain 56 homes, approximately 11 acres of landscaped open space, a two-mile trail system and approximately 60 acres of undisturbed open space. Primary vehicular access would be provided via one proposed private road off State Route 1.

Access & Circulation:

The Neighborhoods Specific Plan proposes private streets and secondary access routes for internal vehicular circulation as well as private pedestrian walkways. The Neighborhoods Specific Plan site would also include a public trail and trailhead parking. The Willow Creek Neighborhood is accessed through one proposed private road and secondary egress is provided through an existing private road. The Hidden Canyon Neighborhood will be accessed through one proposed private road with one proposed secondary road for resident egress. The primary private access roads will be 38-feet wide, with parking allowed on both sides. The secondary private roads will be 24-feet wide, with no parking allowed. The on-site circulation is private and designed to accommodate moving vans/trucks, emergency vehicle access and trash pick-up and to provide safe access and adequate storage for motorists to and from the Neighborhood Specific Plan area. The developer shall comply with the County's off-street parking requirements.

Willow Creek (Western section): A new private road will be constructed approximately 1,200 feet west of the main entrance to the Golf Course and will serve the 90 home sites at the Willow Creek neighborhood. A private secondary access road is provided in the Willow Creek neighborhood with gated egress for residents and full access for emergency personnel only that would be secured by a Knox Box, emergency exiting will be unrestricted and automatic.

Hidden Canyon (Eastern section): Two new private roads will be constructed approximately 1,100 and 1,900 feet east of the existing Golf Course entry to provide primary and secondary access to the 56 home sites of the Hidden Canyon neighborhood.

Neighborhood Specific Plan Sustainable Design Features:

The proposed Neighborhood Specific Plan incorporates various design features that would reduce air pollutant emissions associated with operation of the Neighborhood Specific Plan. These include: 1) use of solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission (CEC) Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent; and, 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

1. Alternative Energy Source. – Solar Power. 100% of the residential units will be pre-wired for solar power.

2. Energy Efficiency Improvements. Proposed architectural planning and design would take advantage of energy efficiency, such as natural heating and/or cooling via roof overhangs and window placement, sun and wind exposure, and solar energy opportunities. Residential design would also consider sufficient setbacks and orientation to maximize solar access to all homes.

3. Water Conservation. Indoor water use would be conserved through the following measures (quantified in California Emissions Estimator Model (CalEEMod)):

    - All hot water lines would be insulated.
    - Water pressure would not exceed 50 pounds per square inch. Water pressure greater than 50 pounds per square inch would be reduced to 50 pounds per square inch or less by means of a pressure-reducing valve.
    - Recirculating, point-of-use, or on-demand water heaters would be installed.
    - Low-flow plumbing fixtures would be used, including 1.6 gallons-per-flush toilets; water-efficient clothes washers and dishwashers would be installed.

    Outdoor water use would be reduced by incorporating drought-tolerant trees, shrubs, and groundcovers compatible with the natural surroundings and the community's architectural theme in The Neighborhoods Landscape Concept Plan. The plant selection would encourage compatible, non-invasive, climate-suitable and drought-tolerant landscape designs, and plants would be grouped by water needs. Evapotranspiration irrigation controllers would be provided, and private irrigation systems are encouraged to be designed to apply water slowly, allowing plants to be deep soaked and reduce runoff. Water-efficient systems, such as drip or bubblers, are encouraged in all areas needing irrigation except turf irrigation and small ornamental plantings. Efficient use of water from the roof drains for

landscape irrigation would also be encouraged. Water efficient systems would comply with the recent changes to State Model Water Efficient Landscape Ordinance and California Green Building Code.

4. Architectural Site Design and Pedestrian Circulation. Traditional elements, consistent with the proposed Neighborhoods architectural styles, would be incorporated to create a pleasant pedestrian-oriented neighborhood environment. These elements include front porches, recessed front garages, or garages on the side of homes, generous street landscaping, and access to a private decomposed granite pedestrian pathway system. Streetlights would provide a safe level of illumination for pedestrians and breaks in view fencing would be provided at cul-de-sacs to facilitate pedestrian movement. Subdivisions would provide pedestrian walkways through the Neighborhood Specific Plan area that connect with the trail system.

Figure 1

Figure 2

2 ENVIRONMENTAL SETTING

2.1 Climate and Topography

The weather of the Santa Barbara region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the mid-70s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains (WRCC 2017).

The topography in the Santa Barbara region varies greatly, from beaches on the North to mountains and valleys in the north; along with local meteorology, it influences the dispersal and movement of pollutants in the basin. The mountains to the north prohibit dispersal of pollutants in that direction and help trap them in inversion layers.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds. Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

2.2 Pollutants and Effects

2.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as TACs, are discussed in the following text.[1] In California, sulfates, vinyl

[1] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016a) and the CARB Glossary of Air Pollutant Terms (2016a).

chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere. The O_3 that the U.S. Environmental Protection Agency (EPA) and CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level ozone is a harmful air pollutant that causes numerous adverse health effects and is thus, considered "bad" ozone. Stratospheric ozone, or "good" ozone, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric ozone layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and

industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic compounds (ROCs)). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air quality management districts and air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter **(**DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016b). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016b). The CARB) classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

2.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic

respiratory diseases. Facilities and structures where these air-pollution-sensitive people live or spend considerable amounts of time are known as "sensitive receptors." Land uses where air-pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The proposed project is located adjacent to an existing golf course with rural residential units to the north of the project site. The nearest sensitive residential receptor is adjacent to the northern property boundary of the project site and within 50 feet of the project.

3 REGULATORY SETTING

3.1 Federal Regulations

3.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

3.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify national emission standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

3.2 State Regulations

3.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual arithmetic mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
	Annual arithmetic mean	20 μg/m^3	—	Same as Primary Standard
$PM_{2.5}$[i]	24 hours	—	35 μg/m^3	Same as Primary Standard
	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Lead[j,k]	30-day average	1.5 μg/m^3	—	—
	Calendar quarter	—	1.5 μg/m^3 (for certain areas)[k]	Same as Primary Standard
	Rolling 3-month average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m^3)	—	—
Sulfates	24 hours	25 μg/m^3	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016c.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3. The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

3.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

3.3 Local Regulations

3.3.1 San Barbara County Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The project Site is located within the SCCAB and is subject to the guidelines and regulations of the SBCAPCD. The SBCAPCD operates monitoring stations in the County, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections.

In Santa Barbara County, O_3 and particulate matter are the pollutants of main concern, since exceedances of state ambient air quality standards for those pollutants are experienced here in most years. For this reason, the SCCAB has been designated as a nonattainment area for the state PM_{10}, and O_3 standards. The SCCAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, an O_3 nonattainment area for the 2008 8-hour O_3 standard.

Clean Air Plans

Since 1992, Santa Barbara County has adopted or amended rules implementing over twenty five control measures controlling stationary source emissions. This has resulted in substantial amounts of reductions in ozone precursor pollutant (nitrogen oxides and reactive organic compounds). Prior to 1999, the County exceeded the national 1-hour O_3 standard, and in response to Clean Air Act requirements, the SBCAPCD prepared plans designed to bring the County into attainment of this standard. The SBCAPCD submitted a plan (maintenance plan) to CARB in November 2001 that demonstrated how the County would maintain the national 1-hour O_3 standard through the year 2015. This 2001 Clean Air Plan was approved by both CARB and the EPA. The 2001 Clean Air

Plan also included a schedule to revise the plan in 3 years, as required by the California Clean Air Act, which would show how the County would work toward meeting the state 1-hour O_3 standard.

The 2004 Clean Air Plan was prepared to address the California Clean Air Act mandates under Health and Safety Code sections 40924 and 40925 that require areas update their Clean Air Plans to attain the state 1-hour O3 standard every 3 years. The 2004 Clean Air Plan was a 3-year update to the 2001 Clean Air Plan. Similarly, the 2007 Clean Air Plan provided a 3-year update to the SBCAPCD's 2004 Clean Air Plan. The 2007 Clean Air Plan was prepared to address both federal and state requirements; specifically, the federal requirements that pertain to maintenance provisions of the federal Clean Air Act, which apply to the County's current designation as an attainment area for the federal 8-hour O3 standard.

The 2010 Clean Air Plan addresses local plans to attain the California 8-hour O_3 standard. The 2010 Clean Air Plan is a 3-year update required to show how the SBCAPCD plans to meet the state 8-hour O_3 standard. In addition to planning for attainment of the state O_3 standard, the 2010 Clean Air Plan contains two chapters that are provided for informational purposes and are not regulatory in nature: a climate protection chapter, with an inventory of carbon dioxide emissions in the County, and a transportation and land use planning chapter (SBCAPCD & SBCAG 2011).

The 2013 Clean Air Plan implements "an all feasible measures" strategy to ensure continued progress towards attainment of the state ozone standards and this plan satisfies all state triennial planning requirements. In this Plan, the SBCAPCD proposes to carry forward proposed stationary source control measures from the 2010 Plan that are pending rule adoption except for two which have been reclassified as "further study" measures. However, the primary focus is on marine shipping emissions. Marine shipping ozone precursor emissions have and will continue to account for the largest percentage of the County's inventory, over 50%. While CARB's future on-road vehicle standards for almost zero or zero tailpipe emissions (e.g., Partial Zero Emission Vehicles and Zero Emission Vehicles) will result in substantial emission reductions, without strategies to gain emission reductions from marine shipping, very little additional progress can be made towards attainment of the state 8-hour ozone standard (SBCAPCD and SBCAG 2015).

The most recent triennial update is the 2016 Ozone Plan, adopted by the SBCAPCD Board in October 2016. The 2016 Ozone Plan incorporates and builds upon the prior Clean Air Plans and predominantly focuses on meeting attainment with the state ozone standards, in addition to achieve the adopted federal ozone standards. The 2016 Ozone Plan focuses on reducing ozone precursor emissions through predicting vehicle activity trends and implementation of transportation control measures, which would serve to reduce mobile-source emissions, the primary source of ROC and NO_x emissions in the County. The 2016 Ozone Plan, carries forward proposed stationary source

control measures that were identified in the 2013 Clean Air Plan. The 2016 Ozone plan also moves two stationary source control measures that were previously listed as "further study" measures to proposed control measures. One control measure that was scheduled for adoption in the 2013 Clean Air Plan has been moved to the "further study" list. Finally, the 2016 Ozone Plan continues to pursue programs that will achieve near-term NO_x reductions in the marine shipping sector (SBCAPCD 2016).

The Santa Barbara County Association of Governments (SBCAG) is responsible for the development and analysis of the 2013 Clean Air Plan's on-road mobile source emission estimates and Transportation Control Measures (TCMs). SBCAG also provides the SBCAPCD with socio-economic projections that form the basis for many of the stationary and area source growth forecasts for the 2016 Ozone Plan. The 2016 Ozone Plan relies on the land use and population projections provided in SBCAG's Regional Growth Forecast. The Regional Growth Forecast is generally consistent with the local plans; therefore, the 2016 Ozone Plan is generally consistent with local general plans.

SBCAPCD Rules and Regulations

As stated above, the SBCAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SCCAB. The following rules and regulations apply to all sources in the jurisdiction of SBCAPCD, and would apply to the proposed project:

- **Rule 302 (Visible Emissions).** Rule 302 prohibits emissions of visible air contaminants from any potential source of air contaminants. The rule prohibits air contaminants, other than water vapor, that are a certain level of darkness or opacity from being discharged for a combined period of more than 3 minutes in any 1 hour.
- **Rule 303 (Nuisance).** This rule could apply to fugitive dust emitted during proposed construction activities or odors during operation. This rule states that a person shall not discharge air contaminants from any source that can cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or that can endanger the comfort, repose, health, or safety, of any such persons or their business or property.
- **Rule 311 (Sulfur Content of Fuels).** The purpose of this rule is to limit the sulfur content in gaseous fuels, diesel and other liquid fuels, and solid fuels for the purpose of both reducing the formation of SO_x and particulates during combustion.
- **Rule 323 (Architectural Coatings).** This rule requires manufactures, distributors, and end-users of architectural and industry maintenance coatings to reduce ROC emissions

from the use of these coatings, primarily by placing limits on the ROC content of various coating categories.

- **Rule 329 (Cutback and Emulsified Asphalt Paving Materials).** This rule applies to the application and sale of cutback and emulsified asphalt materials for the paving, construction, and maintenance of streets, highways, parking lots, and driveways, and reduces potential emissions by restricting the percent by volume of ROCs in asphalt material.

- **Rule 345 (Control of Fugitive Dust from Construction and Demolition Activities).** Rule 345 establishes limits on the generation of visible fugitive dust emissions at demolition and construction sites. The rule includes measures for minimizing fugitive dust from on-site activities and from trucks moving on and off site.

4 REGIONAL AND LOCAL AIR QUALITY CONDITIONS

4.1 South Central Coast Air Basin Attainment Status

Pursuant to the 1990 federal Clean Air Act Amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. As previously discussed, these standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS.

The criteria pollutants of primary concern that are considered in this analysis are O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3.The SCCAB is currently designated nonattainment for O_3, and PM_{10} under the CAAQS. It is designated attainment for the CAAQS for CO, PM_{10}, NO_2, SO_2, lead, and sulfates.

Table 2, SCCAB Attainment Classification, summarizes the SCCAB's federal and state attainment designations for each of the criteria pollutants.

Table 2
SCCAB Attainment Classification

Pollutant	Federal Designation[a]	State Designation[b]
O_3 (1-hour)	Attainment[1]	**Nonattainment**
O_3 (8-hour – 1997) (8-hour – 2008)	Unclassifiable/Attainment **Nonattainment (Marginal)**	**Nonattainment**
CO	Attainment (Maintenance)	Attainment
PM_{10}	Unclassifiable/Attainment[3]	**Nonattainment**
$PM_{2.5}$	Unclassifiable/Attainment	Unclassified
NO_2	Unclassifiable/Attainment	Attainment

Table 2
SCCAB Attainment Classification

Pollutant	Federal Designation[a]	State Designation[b]
SO_2	Unclassified	Attainment
Lead[4]	Unclassifiable/Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Attainment
Visibility-Reducing Particles	(no federal standard)	Unclassified
Vinyl chloride[4]	No federal standard	No designation

Sources: [a] EPA 2016b; [b] CARB 2015.
Notes:
1 The federal 1-hour standard of 0.12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in SIPs.
3 At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.
4 CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined.

4.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Local ambient air quality is monitored by the SBCAPCD. The SBCAPCD operates a network of ambient air monitoring stations throughout Santa Barbara County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SBCAPCD monitors air quality conditions at 12 locations throughout the basin. The nearest SBCAPCD-operated monitoring station in which criteria pollutant data was collected is the Santa Maria monitoring station which was located approximately 5-miles northeast of the project site. This site was used to show the background ambient air quality for O_3, $PM_{2.5}$, PM_{10}, CO, and N_2O. The closest monitoring site for SO_2 was the Vandenberg monitoring station located at Vandenberg Air Force Base, which is about 10 miles southwest of the site. The most recent background ambient air quality data and number of days exceeding the ambient air quality standards from 2015 to 2017 are presented in Table 3.

Table 3
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Ozone (O_3)-Santa Maria									

Table 3
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Maximum 1-hour concentration	ppm	State	0.09	0.066	0.062	0.068	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.056	0.057	0.063	0	0	0
		Federal	0.070	0.055	0.056	0.063	0	0	0
Nitrogen Dioxide (NO_2)- Santa Maria									
Maximum 1-hour concentration	ppm	State	0.18	0.046	0.036	0.044	0	0	0
		Federal	0.100	0.046	0.036	0.044	0	0	0
Annual concentration	ppm	State	0.030	0.007	0.006	ND	—	—	—
		Federal	0.053	0.007	0.006	0.006	—	—	—
Carbon Monoxide (CO)- Santa Maria									
Maximum 1-hour concentration	ppm	State	20	—	—	—	—	—	—
		Federal	35	2.9	3.6	1.0	0	0	0
Maximum 8-hour concentration	ppm	State	9.0	—	—	—	—	—	—
		Federal	9	1.2	1.5	0.6	0	0	0
Sulfur Dioxide (SO_2)-Vandenberg AFB									
Maximum 1-hour concentration	ppm	Federal	0.075	0.03	0.03	0.02	0	0	0
Maximum 24-hour concentration	ppm	Federal	0.14	0.011	0.020	0.009	0	0	0
Annual concentration	ppm	Federal	0.030	ND	0.004	0.007	—	—	—
Coarse Particulate Matter (PM_{10})[a]- Santa Maria									
Maximum 24-hour concentration	μg/m³	State	50	66.4	78.6	106.9	10.2 (10)	ND (16)	ND (22)
		Federal	150	64.6	76.8	104.6	0.0 (0)	0.0 (0)	0.0 (0)
Annual concentration	μg/m³	State	20	23.7	ND	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]- Santa Maria									
Maximum 24-hour concentration	μg/m³	Federal	35	19.2	19.4	19.9	0.0 (0)	0.0 (0)	0.0 (0)

Table 3
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Annual concentration	μg/m³	State	12	7.8	ND	7.3	—	—	—
		Federal	12.0	7.7	7.0	7.2	—	—	—

Sources: CARB 2018; EPA 2018.
Notes: — = not available; μg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million
Data taken from ARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.
Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 Thresholds of Significance

5.1.1 CEQA Guidelines

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), which provides guidance that a project would have a significant environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

Appendix G of the CEQA Guidelines indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

5.1.2 County of Santa Barbara Environmental Thresholds

The County of Santa Barbara Environmental Thresholds and Guidelines Manual (County of Santa Barbara 2015b) states that a significant adverse air quality impact may occur when air pollutant emissions associated with a project, individually or cumulatively:

- Interferes with progress toward the attainment of the ozone standard by releasing emissions which equal or exceed the established long-term quantitative thresholds for NO_x and ROC; or
- Equals or exceeds the state or federal ambient air quality standards for any criteria pollutant (as determined by modeling).

The evaluation of whether a project would conflict with or obstruct implementation of the applicable air quality plan is based on the consistency with land use and population forecasts. Consistency with an applicable air quality plan means that a project's direct and indirect emissions are accounted for in the air quality plan's emissions growth assumptions and the project is consistent with the policies developed in the air quality plan (SBCAPCD 2015). The relevant air quality plan to the proposed project is the 2016 Ozone Plan. The 2016 Ozone Plan relies on the land use and population projections provided by the SBCAG and CARB on-road emissions forecast in order to develop vehicle emission forecasts. In addition, the 2016 Ozone Plan utilizes SBCAG's Regional Growth Forecast to project population growth and associated air pollutant emissions within Santa Barbara County. Residential projects that exceed the amount of forecasted growth for the specific jurisdiction or sub-region would be considered inconsistent with the 2016 Ozone Plan.

The County's guidance also indicates that cumulative air quality impacts and consistency with the polices and measures in the Air Quality Supplement of the Comprehensive Plan, other general plans, and the Air Quality Attainment Plan should be determined for all projects (i.e., whether the project exceeds the Air Quality Attainment Plan emission projections or growth assumptions). Pursuant to the County's Threshold Manual, the following issues should also be discussed, but only if they are applicable to the project:

- Emissions which may affect sensitive receptors (e.g. children, eldery, or acutely ill);
- Toxic or hazardous air pollutants in amounts which may increase cancer risk for the affected population; or
- Odor or another air quality nuisance problem impacting a considerable number of people

Chapter 5 of the Santa Barbara County Environmental Thresholds and Guidelines Manual addresses the subject of air quality. The Long-term/Operational Emission Thresholds provide that a proposed project will not have a significant impact on air quality if operation of the project will:

- Emit (from all project sources, mobile and stationary), less than the daily trigger for offsets of any pollutant (Currently 55 pounds per day for NO_x and ROC, and 80 pounds for PM_{10});
- Emit less than 25 pounds per day of NO_x or reactive organic compounds from motor vehicle trips only;
- Not cause or contribute to a violation of California or National Ambient Air Quality Standards (except ozone);

- Not exceed the SBCAPCD's health risk public notification thresholds adopted by the SBCAPCD board; and
- Be consistent with the adopted federal and state Air Quality Plans.

As stated in the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents (*SBCAPCD 2017a), no quantitative thresholds have been established for short-term impacts associated with construction activities. However, the SBCAPCD uses 25 tons per year for ROC or NO_x as a guideline for determining the significance of construction impacts. Additionally, the County's grading ordinance requires standard dust control conditions for all projects involving grading activities. The Long-term/Operational Emission Thresholds listed above have been established to address mobile emissions (i.e., motor vehicle emissions) and stationary source emissions (i.e., station boilers, engines, paints, solvents, and chemical or industrial processing operations that release pollutants) (SBCAPCD 2017).

The County's Threshold Manual states that a project will have a significant air quality impact if it causes, by adding to the existing background CO levels, a CO "hot spot" where the California one-hour standard of 20 parts per million carbon monoxide is exceeded, which typically occurs at severely congested intersections. The County's project screening for CO impacts are the following:

1. If a project contributes less than 800 peak hour trips, then CO modeling is not required.
2. Project contributing more than 800 peak hour trips to an existing congested intersection at level of service (LOS) D or below, or will cause an intersection to reach LOS D or below, may be required to model for CO impacts. However, projects that will incorporate intersection modifications to ease traffic congestion, are not required to perform modeling to determine potential CO impacts.

5.2 Approach and Methodology

5.2.1 Construction

Emissions from the construction phase of the proposed project were estimated using CalEEMod, version 2016.3.2. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known.

For the purposes of modeling, it was assumed that construction of the proposed project would commence in June 2019[2] and would last approximately 55 months, ending in January 2024. The analysis contained herein is based on the following assumptions outline in Table 4 (duration of phases is approximate). Additionally, it was assumed that construction would occur concurrently, with each site developing approximately 30 homes per year.

Table 4
Construction Phasing Assumptions

Project Construction Phase	Construction Start Date	Construction End Date
Site Preparation (Both sites)	06/2019	02/2020
Grading (Both sites)	02/2020	09/2020
Building Construction-Phase 1 (Both sites)	09/2020	10/2021
Paving 1(Both sites)	10/2021	11/2021
Architectural Coating-Phase 1 (Both sites)	11/2021	12/2021
Building Construction 2 (Both sites)	12/2021	10/2022
Paving 2 (Both sites)	10/2022	11/2022
Architectural Coating-Phase 2 (Both sites)	11/2022	12/2022
Building Construction 3 (Willow Creek Only)	12/2022	11/2023
Paving 3 (Willow Creek Only)	11/2023	12/2023
Architectural Coating 3 (Willow Creek Only)	12/2023	01/2024

Notes: See Appendix A for details.

The construction equipment mix used for estimating the construction emissions of the proposed project is based on information provided by the applicant and is shown in Table 5, Construction Scenario Assumptions. Table 5 presents anticipated construction at both the Willow Creek and Hidden Canyon neighborhoods. The project applicant outlined construction-phasing specifications and model defaults were incorporated where applicant data was not available. The default values generated by CalEEMod were also used for the construction equipment mix. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site 5 days

[2] The analysis assumes a construction start date of June 2019, which represented the estimated start of construction when the project application was submitted to the county for processing. Current scheduling estimates represent an approximate 10-month delay, projecting activity starting in April 2020 and ending in November 2024. The scheduling estimates used in this analysis, however, represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

per week during project construction, with few exceptions per CalEEMod. CalEEMod defaults were assumed for construction worker trips and vendor trips.

Table 5
Construction Scenario Assumptions

Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment	Quantity	Daily Usage Hours
Site Preparation	18	0	5,273	Rubber Tired Dozers	6	8
				Tractors/Loaders/Backhoes	8	8
Grading-Phase	20	0	5,273	Graders	2	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/Backhoes	4	8
				Scrapers	4	8
Building Construction (Phases 1-3)	378	145	0	Cranes	2	7
				Forklifts	6	8
				Generator Sets	2	8
				Tractors/loaders/Backhoes	6	7
				Welders	2	8
Paving (Phases 1-3)	15	0	0	Pavers	4	8
				Paving Equipment	4	8
				Rollers	4	8
Architectural Coating (Phase 1-3)	76	0	0	Air Compressors	2	6

Notes: See Appendix A for details.

The proposed project would disturb approximately 92.2 acres of the 189-acre project site during site preparation and grading activities. Approximately 84,367 cubic yards of net cut would be required at the Hidden Canyon site and approximately 27,031 cubic yards of net fill at the Willow Creek site. Soil balance would occur within each subset area and offsite hauling would not be required. Balancing activities are anticipated to be performed through the use of off-road construction equipment (e.g., graders, dozers, backhoes, and scrapers). The hauling trips were calculated based on the amount of material transferred between the two project sites and assuming a 16 cubic yard capacity truck.

A detailed depiction of the construction schedule—including information regarding subphases, and equipment used during each subphase—is included in Appendix A of this report. The information contained in Appendix A was used as CalEEMod model inputs.

5.2.2 Operation

Emissions from the operational phase of the proposed project were estimated using CalEEMod, Version 2016.3.2. An operational year of 2024 was assumed consistent with the construction schedule presented in Section 5.2.1, as this would be the first full year of project operation.

Mobile Sources (Motor Vehicles)

Following the completion of construction activities, the proposed project would generate criteria pollutant emissions from mobile sources (vehicular traffic), as a result of the residents from the proposed project. The daily vehicle miles traveled was estimated using the CalEEMod default values for each land-use type. The estimated trip lengths and trip modes were based on CalEEMod defaults for every land-use. Default trip generation rates included in CalEEMod were adjusted to match the proposed project's trip generation provided in the Traffic and Circulation Study (Stantec 2018). The proposed project would result in 1,378 weekday trips. CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates because weekend trip-generation rates were not provided in the traffic study. The CalEEMod model was used to estimate emissions from proposed vehicular sources (refer to Appendix A).

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential buildings and on the default factor of pounds of VOC per building square foot per day. The CalEEMod default values for consumer products were assumed.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building maintenance. CalEEMod calculates the VOC

evaporative emissions from application of surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

CalEEMod default values for energy consumption for each land use were applied for the proposed project analysis. The energy use from residential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database.

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, became effective on January 1, 2017. The proposed project would be required to comply with the 2016 Title 24 energy standards.

6 IMPACT ANALYSIS

6.1 Would the project conflict with or obstruct implementation of the applicable air quality plan.

As mentioned in Section 3, Regulatory Setting, the SBCAPCD and SBCAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the basin. The SBCAPCD further describes consistency with the Clean Air Plan for projects subject to these guidelines, which means that direct and indirect emissions associated with the project are accounted for in the Clean Air Plan's emissions growth assumptions, and the project is consistent with polices adopted in the Clean Air Plan. The 2016 Ozone Plan was adopted by the District Board on October 20, 2016 and is the most recent applicable air quality plan. The 2016 Ozone Plan is the 3- year update required by the state to show the SBCAPCD plans to meet the state 8-hour O_3 Standard (SBCAPCD 2016)

The 2016 Ozone Plan relies primarily on the land use and population projections provided by the SBCAG and CARB on-road emissions forecasts as a basis for vehicle emissions for all of Santa Barbara County incorporated and unincorporated areas.

If a project proposes development that is greater than that anticipated in the local plan and SBCAG's growth projections, the project might be in conflict with the Ozone Plan and may contribute to a potentially significant cumulative impact on air quality. The project site is within the Orcutt Community Plan, specifically Key Site 21. The land use designation at the project site is PD, which allows the project site to be developed with residential units and is zoned PRD (maximum of 150 units). The unincorporated portion of Santa Barbara has a population of approximately 142,088 people as of 2016 (Department of Finance 2016) and is anticipated to reach 145,581 people by 2020 and 160,588 by 2035, for an annual growth rate of 1,000 per year (SBCAG 2012). The proposed project's addition of 431[3] residents by 2024, based on SBCAG growth forecast values, would not exceed the region's anticipated growth.

Based on the nature of the proposed project, implementation of the proposed project would not result in development in excess of that anticipated in local plans or increases in population/housing growth beyond those contemplated by SBCAG. As such, the proposed project would not conflict

[3] The proposed project's estimated population of 431 was obtained by interpolating the average household size between years 2020 (445,891 persons ÷ 149,900 households = 2.97) and 2025 (495,000 persons ÷ 159,600 households = 2.95) resulting in an average household size of 2.95 for the year 2024 (i.e., full project buildout).

with or obstruct implementation of a local air quality plan, and therefore, impacts associated with consistency of local plans would be less than significant.

6.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Pollutant emissions associated with construction activity were quantified using CalEEMod. Default values provided by the program were used where detailed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 5.2.1. The information contained in Appendix A was used as CalEEMod inputs.

Implementation of the proposed project would generate construction-related air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, asphalt pavement application, and architectural coatings. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The proposed project is subject to SBCAPCD Rule 302, Visible Emissions. Rule 302 prohibits emissions of visible air contaminants from any potential source of air contaminants. Compliance with Rule 302 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

Exhaust from internal combustion engines used by construction equipment and hauling trucks (dump trucks) and vendor trucks (delivery trucks) and worker vehicles would result in emissions of ROC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior/interior paint and other finishes, would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SBCAPCD Rule 323, Architectural Coatings. This rule requires

manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce ROC emissions from the use of these coatings, primarily by placing limits on the ROC content of various coating categories.

Table 6 shows the estimated annual construction emissions associated with the construction of the proposed project. Complete details of the emissions calculations are provided in Appendix A of this document.

Table 6
Estimated Annual Construction Criteria Air Pollutant Emissions

Year	ROC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
	Tons per year					
2019	0.68	3.55	7.39	0.01	1.47	0.93
2020	0.95	6.74	10.70	0.01	1.29	0.76
2021	2.51	6.87	7.54	0.02	0.94	0.42
2022	2.43	6.49	6.82	0.02	0.89	0.38
2023	1.01	3.24	3.13	0.01	0.45	0.18
2024	0.28	0.01	0.00	0.00	0.00	0.00
Maximum annual emissions	**2.70**	**6.94**	**10.84**	**0.02**	**3.79**	**1.90**
SBCAPCD threshold	*25*	*25*	*25*	*25*	*25*	*25*
Threshold exceeded?	No	No	No	No	No	No

Notes: ROC = reactive organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
The values shown are the combined Annual emissions results from CalEEMod
See Appendix A for complete results.

As shown in Table 6, annual construction emissions would not exceed the significance thresholds for ROC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. **Therefore, impacts during construction would be less than significant. Additionally, the County's standard conditions for dust control will further mitigate any impacts from related to fugitive dust.**

Operation

The proposed project involves development of 146 single-family residential units, approximately 26.8 acres of managed open space and approximately 16 acres of new roads on two properties. Operation of the proposed project would generate ROC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips from future residents; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; and energy sources. As discussed in Section 5.2.2, Operation, pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile

source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the project area and energy sources.

Table 7 presents the maximum daily area, energy, and mobile source emissions associated with operation (year 2024) of the proposed project. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 7
Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	ROC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Area	9.36	0.62	12.04	0.00	0.07	0.07
Energy	0.13	1.07	0.46	0.01	0.09	0.09
Mobile	2.05	7.13	20.60	0.06	5.71	1.56
Total	**11.53**	**8.82**	**33.10**	**0.07**	**5.86**	**1.72**
Vehicle Source Emission Threshold	*25*	*25*	–	–	*NA*	–
Vehicle Source Emissions Threshold Exceeded?	**No**	**No**	–	–	**No**	–
Area + Vehicle Source Emissions Threshold	*55*	*55*	–	–	*80*	–
Area + Vehicle Source Emissions Threshold?	**No**	**No**	–	–	**No**	–

Notes: ROC = reactive organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SBCAPCD Rule 323 (Architectural Coatings).

As shown in Table 7, mobile source emissions would not exceed the County's operational mobile thresholds for ROC and NO_x of 25 pounds per day of either pollutant. Additionally, total emissions would not exceed the combined source emissions threshold for ROC, NO_x, and, PM_{10}. **Therefore, impacts associated with project-generated operational criteria air pollutant emissions would be less than significant.**

6.3 Would the project expose sensitive receptors to substantial pollutant concentrations?

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks during construction of the project and the associated health impacts to sensitive receptors. The following measures are required by state law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.

- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

As discussed in Section 2.3, Sensitive Receptors, sensitive receptors include schools, daycare facilities, hospitals, and care facilities (adult/elderly) (SBCAPCD 2017b). The closest existing sensitive receptors is a single-family residence located approximately 50 feet to the north of the project site's boundary.

"Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. TACs that would potentially be emitted during construction activities would be DPM, emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to CARB air toxic control measures to reduce DPM emissions. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Proposed construction activities would occur over an approximately 4.5-year period, which equates to about 15% of the total 30-year analysis exposure period. Moreover, the SBCAPCD Modeling Guidelines for Health Risk Assessment, Form 15i, provides guidance with which to perform HRAs within the County. The

SBCAPCD recommends that health risk assessments are not to include emissions associated with construction activities (SBCAPCD 2017b). Therefore, the proposed project would result in minimal TACs during construction and would result in less than significant health risk impacts.

Regarding long-term operations, the proposed project would develop 146 single-family dwelling units and ancillary facilities. The proposed project would not result in non-permitted stationary sources that would emit air pollutants or TACs. Examples of projects that emit pollutants include oil and gas processing, gasoline dispensing, dry cleaning, electronic and parts manufacturing medical equipment sterilization, freeways, and rail yards (SBCAPCD 2015). Therefore, operation of the proposed project would not emit TACs and toxic contaminants are not anticipated to be present at the project site. **Accordingly, the project is not anticipated to result in emissions that would exceed the SBCAPCD Board-adopted health risk notification thresholds.**

6.4 Would the project create objectionable odors affecting a substantial number of people?

Although the SBCACPD has not adopted quantitative thresholds of significance for odor impacts, the SBCAPCD recommends the development of an Odor Abatement Plan for projects that may generate nuisance odors that may affect a substantial number of people.

Construction Odor Impacts

Potential sources that may emit odors during construction activities include diesel equipment and gasoline fumes and solvents from the applicant of appoint. Odors from these sources would be localized and generally confined to the project site. The closest sensitive receptor to the project site is a single-family residence located approximately 50 feet to the north of the project site. The release of odor-causing compounds would tend to be during the workday, when many residents would not be at home. Furthermore, the SBCAPCD rules restrict ROC content in paints. Such odors are temporary and generally occur at magnitudes that would not affect a substantial number of people. **Therefore, construction of the proposed project would not cause an odor nuisance, and impacts associated with odors during construction would be considered less than significant.**

Operational Odor Impacts

Certain projects have the potential to cause significant odor impacts because of the nature of their operation and their location. Examples include fast food restaurants, bakeries, and coffee roasting facilities (SBCAPCD 2015). Other projects may be developments (e.g., residential areas or sensitive receptors) that are located downwind of existing sources of odor. **The proposed project**

would not result in the creation of a new land use that is commonly associated with odors. Therefore, the project would result in less than significant odor impact.

6.5 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Cumulative air quality impacts are the effect of long-term emissions of the proposed project plus any existing emissions at the same location, as well as the effect of long-term emissions of reasonably foreseeable similar projects, on the projected regional air quality or localized air pollution in the County. As discussed in the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents*, the cumulative contribution of project emissions to regional levels should be compared with existing programs and plans, including the most recent Clean Air Plan (SBCAPCD 2017).

Due to the County's non-attainment status for 8-hour Ozone standard and its regional nature, if a project's emissions from traffic sources of either of the Ozone precursors, ROC or NOx, exceed the long-term emission thresholds, then the project's cumulative impacts will be considered significant. For projects that do not have significant Ozone precursor emissions or localized pollutant impacts, if emissions have been taken into account in the most recent Clean Air Plan growth projections, regional cumulative impacts may be considered less than significant. When a project's emissions exceeded the thresholds and are clearly not accounted for in the most recent Clean Air Plan growth projections, then the project is considered to have significant cumulative impacts that must be mitigated to a level of less than significant.

In analyzing cumulative impacts form the proposed project, the assessment must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the County is designated as nonattainment for the NAAQS or CAAQS. The County is currently in attainment of NAAQS and is in attainment for all CAAQS with the exception of the State 8-hour Ozone standard and the State standards for PM_{10}. Construction and operation of the proposed project would generate emission of ROC and NOx (O_3 precursors) and PM_{10} emissions; however, the proposed project would not exceed SBCAPCD guidance for annual construction emissions or SBCAPCD thresholds for daily operational emissions. Since implementation of the proposed project would result in less than significant impacts associated with operation of the project, the project's contribution to the County's nonattainment status for the State 8-hour Ozone and PM_{10} standards would be less than cumulatively considerable. **As the project would not result in significant Ozone precursor**

emissions or PM_{10} emissions, and project-generated emissions have been taken into account in the SBCAPCD's 2016 Ozone Plan growth projections, cumulative impacts would be less than significant.

7 REFERENCES CITED

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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8 LIST OF PREPARERS

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APPENDIX A

Detailed Calculation Tables

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:29 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour.

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3435	3.8136	1.8031	3.5500e-003	1.3958	0.1830	1.5788	0.7605	0.1684	0.9289	0.0000	325.2386	325.2386	0.0886	0.0000	327.4541
2020	0.4764	5.4932	3.4003	7.3500e-003	1.0057	0.2209	1.2266	0.4348	0.2036	0.6383	0.0000	660.4100	660.4100	0.1768	0.0000	664.8307
2021	1.1619	3.7313	3.3998	9.0200e-003	0.3404	0.1199	0.4603	0.0925	0.1127	0.2052	0.0000	831.9416	831.9416	0.1016	0.0000	834.4825
2022	1.1186	3.3462	3.1852	8.7100e-003	0.3328	0.0994	0.4322	0.0904	0.0934	0.1839	0.0000	803.9797	803.9797	0.0988	0.0000	806.4487
Maximum	**1.1619**	**5.4932**	**3.4003**	**9.0200e-003**	**1.3958**	**0.2209**	**1.5788**	**0.7605**	**0.2036**	**0.9289**	**0.0000**	**831.9416**	**831.9416**	**0.1768**	**0.0000**	**834.4825**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3435	3.8136	1.8031	3.5500e-003	0.5562	0.1830	0.7392	0.2998	0.1684	0.4682	0.0000	325.2383	325.2383	0.0886	0.0000	327.4538
2020	0.4764	5.4932	3.4003	7.3500e-003	0.4328	0.2209	0.6537	0.1805	0.2036	0.3840	0.0000	660.4094	660.4094	0.1768	0.0000	664.8301
2021	1.1619	3.7313	3.3998	9.0200e-003	0.3404	0.1199	0.4603	0.0925	0.1127	0.2052	0.0000	831.9413	831.9413	0.1016	0.0000	834.4822
2022	1.1186	3.3462	3.1852	8.7100e-003	0.3328	0.0994	0.4322	0.0904	0.0934	0.1839	0.0000	803.9794	803.9794	0.0988	0.0000	806.4484
Maximum	**1.1619**	**5.4932**	**3.4003**	**9.0200e-003**	**0.5562**	**0.2209**	**0.7392**	**0.2998**	**0.2036**	**0.4682**	**0.0000**	**831.9413**	**831.9413**	**0.1768**	**0.0000**	**834.4822**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**45.94**	**0.00**	**38.20**	**51.88**	**0.00**	**36.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Energy	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	189.5425	189.5425	7.6200e-003	2.8300e-003	190.5750
Mobile	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Waste						0.0000	0.0000		0.0000	0.0000	16.2829	0.0000	16.2829	0.8074	0.0000	36.4683
Water						0.0000	0.0000		0.0000	0.0000	1.2909	16.4122	17.7030	5.4000e-003	3.0000e-003	18.7332
Total	**0.8776**	**0.5553**	**1.7715**	**4.2500e-003**	**0.3684**	**0.0116**	**0.3800**	**0.0989**	**0.0114**	**0.1103**	**17.5738**	**553.1546**	**570.7284**	**0.8377**	**5.8300e-003**	**593.4076**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Energy	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	189.5425	189.5425	7.6200e-003	2.8300e-003	190.5750
Mobile	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Waste						0.0000	0.0000		0.0000	0.0000	4.0707	0.0000	4.0707	0.2019	0.0000	9.1171
Water						0.0000	0.0000		0.0000	0.0000	1.0327	13.1297	14.1624	4.3200e-003	2.4000e-003	14.9866
Total	**0.8776**	**0.5553**	**1.7715**	**4.2500e-003**	**0.3684**	**0.0116**	**0.3800**	**0.0989**	**0.0114**	**0.1103**	**5.1034**	**549.8722**	**554.9756**	**0.2310**	**5.2300e-003**	**562.3097**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**70.96**	**0.59**	**2.76**	**72.42**	**10.29**	**5.24**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3765	0.0000	1.3765	0.7553	0.0000	0.7553	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6820	259.6820	0.0822	0.0000	261.7360
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**1.3765**	**0.1817**	**1.5581**	**0.7553**	**0.1671**	**0.9224**	**0.0000**	**259.6820**	**259.6820**	**0.0822**	**0.0000**	**261.7360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3459	0.0895	5.8000e-004	0.0109	1.2700e-003	0.0122	2.9600e-003	1.2200e-003	4.1700e-003	0.0000	58.4366	58.4366	6.1900e-003	0.0000	58.5912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**0.0140**	**0.3501**	**0.1263**	**6.6000e-004**	**0.0193**	**1.3300e-003**	**0.0207**	**5.2100e-003**	**1.2700e-003**	**6.4700e-003**	**0.0000**	**65.5566**	**65.5566**	**6.4600e-003**	**0.0000**	**65.7181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5368	0.0000	0.5368	0.2946	0.0000	0.2946	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6817	259.6817	0.0822	0.0000	261.7357
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**0.5368**	**0.1817**	**0.7185**	**0.2946**	**0.1671**	**0.4617**	**0.0000**	**259.6817**	**259.6817**	**0.0822**	**0.0000**	**261.7357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3459	0.0895	5.8000e-004	0.0109	1.2700e-003	0.0122	2.9600e-003	1.2200e-003	4.1700e-003	0.0000	58.4366	58.4366	6.1900e-003	0.0000	58.5912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**0.0140**	**0.3501**	**0.1263**	**6.6000e-004**	**0.0193**	**1.3300e-003**	**0.0207**	**5.2100e-003**	**1.2700e-003**	**6.4700e-003**	**0.0000**	**65.5566**	**65.5566**	**6.4600e-003**	**0.0000**	**65.7181**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2202	0.0000	0.2202	0.1197	0.0000	0.1197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4412
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2202**	**0.0264**	**0.2466**	**0.1197**	**0.0243**	**0.1440**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4412**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2300e-003	0.0514	0.0129	9.0000e-005	8.8700e-003	1.4000e-004	9.0100e-003	2.2200e-003	1.3000e-004	2.3500e-003	0.0000	9.1897	9.1897	9.8000e-004	0.0000	9.2141
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.9200e-003**	**0.0520**	**0.0180**	**1.0000e-004**	**0.0102**	**1.5000e-004**	**0.0104**	**2.5700e-003**	**1.4000e-004**	**2.7100e-003**	**0.0000**	**10.2793**	**10.2793**	**1.0200e-003**	**0.0000**	**10.3046**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0859	0.0000	0.0859	0.0467	0.0000	0.0467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4411
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.0859**	**0.0264**	**0.1123**	**0.0467**	**0.0243**	**0.0709**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4411**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2300e-003	0.0514	0.0129	9.0000e-005	8.8700e-003	1.4000e-004	9.0100e-003	2.2200e-003	1.3000e-004	2.3500e-003	0.0000	9.1897	9.1897	9.8000e-004	0.0000	9.2141
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.9200e-003**	**0.0520**	**0.0180**	**1.0000e-004**	**0.0102**	**1.5000e-004**	**0.0104**	**2.5700e-003**	**1.4000e-004**	**2.7100e-003**	**0.0000**	**10.2793**	**10.2793**	**1.0200e-003**	**0.0000**	**10.3046**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7190	0.0000	0.7190	0.2972	0.0000	0.2972	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4954	449.4954	0.1454	0.0000	453.1298
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.7190**	**0.1794**	**0.8983**	**0.2972**	**0.1650**	**0.4622**	**0.0000**	**449.4954**	**449.4954**	**0.1454**	**0.0000**	**453.1298**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0500e-003	0.3771	0.0944	6.7000e-004	0.0113	1.0100e-003	0.0123	3.0900e-003	9.6000e-004	4.0600e-003	0.0000	67.3911	67.3911	7.1600e-003	0.0000	67.5700
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**0.0144**	**0.3816**	**0.1336**	**7.6000e-004**	**0.0215**	**1.0800e-003**	**0.0225**	**5.8000e-003**	**1.0200e-003**	**6.8300e-003**	**0.0000**	**75.7143**	**75.7143**	**7.4400e-003**	**0.0000**	**75.9003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2804	0.0000	0.2804	0.1159	0.0000	0.1159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4949	449.4949	0.1454	0.0000	453.1293
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.2804**	**0.1794**	**0.4598**	**0.1159**	**0.1650**	**0.2809**	**0.0000**	**449.4949**	**449.4949**	**0.1454**	**0.0000**	**453.1293**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0500e-003	0.3771	0.0944	6.7000e-004	0.0113	1.0100e-003	0.0123	3.0900e-003	9.6000e-004	4.0600e-003	0.0000	67.3911	67.3911	7.1600e-003	0.0000	67.5700
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**0.0144**	**0.3816**	**0.1336**	**7.6000e-004**	**0.0215**	**1.0800e-003**	**0.0225**	**5.8000e-003**	**1.0200e-003**	**6.8300e-003**	**0.0000**	**75.7143**	**75.7143**	**7.4400e-003**	**0.0000**	**75.9003**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6352	26.6352	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6352**	**26.6352**	**6.5000e-003**	**0.0000**	**26.7976**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4200e-003	0.1774	0.0619	3.8000e-004	9.2900e-003	9.5000e-004	0.0103	2.6800e-003	9.1000e-004	3.5900e-003	0.0000	37.2853	37.2853	2.8200e-003	0.0000	37.3557
Worker	0.0133	0.0112	0.0983	2.3000e-004	0.0256	1.7000e-004	0.0257	6.8000e-003	1.5000e-004	6.9500e-003	0.0000	20.8837	20.8837	7.1000e-004	0.0000	20.9015
Total	**0.0197**	**0.1887**	**0.1602**	**6.1000e-004**	**0.0349**	**1.1200e-003**	**0.0360**	**9.4800e-003**	**1.0600e-003**	**0.0105**	**0.0000**	**58.1690**	**58.1690**	**3.5300e-003**	**0.0000**	**58.2572**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6351	26.6351	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6351**	**26.6351**	**6.5000e-003**	**0.0000**	**26.7976**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4200e-003	0.1774	0.0619	3.8000e-004	9.2900e-003	9.5000e-004	0.0103	2.6800e-003	9.1000e-004	3.5900e-003	0.0000	37.2853	37.2853	2.8200e-003	0.0000	37.3557
Worker	0.0133	0.0112	0.0983	2.3000e-004	0.0256	1.7000e-004	0.0257	6.8000e-003	1.5000e-004	6.9500e-003	0.0000	20.8837	20.8837	7.1000e-004	0.0000	20.9015
Total	**0.0197**	**0.1887**	**0.1602**	**6.1000e-004**	**0.0349**	**1.1200e-003**	**0.0360**	**9.4800e-003**	**1.0600e-003**	**0.0105**	**0.0000**	**58.1690**	**58.1690**	**3.5300e-003**	**0.0000**	**58.2572**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7446	239.7446	0.0578	0.0000	241.1906
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7446**	**239.7446**	**0.0578**	**0.0000**	**241.1906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0478	1.4635	0.4970	3.3700e-003	0.0837	4.3400e-003	0.0880	0.0241	4.1500e-003	0.0283	0.0000	332.8065	332.8065	0.0253	0.0000	333.4397
Worker	0.1109	0.0900	0.8001	2.0100e-003	0.2301	1.4500e-003	0.2316	0.0612	1.3400e-003	0.0625	0.0000	181.5708	181.5708	5.6800e-003	0.0000	181.7127
Total	**0.1587**	**1.5535**	**1.2971**	**5.3800e-003**	**0.3138**	**5.7900e-003**	**0.3196**	**0.0853**	**5.4900e-003**	**0.0908**	**0.0000**	**514.3773**	**514.3773**	**0.0310**	**0.0000**	**515.1524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7443	239.7443	0.0578	0.0000	241.1903
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7443**	**239.7443**	**0.0578**	**0.0000**	**241.1903**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0478	1.4635	0.4970	3.3700e-003	0.0837	4.3400e-003	0.0880	0.0241	4.1500e-003	0.0283	0.0000	332.8065	332.8065	0.0253	0.0000	333.4397
Worker	0.1109	0.0900	0.8001	2.0100e-003	0.2301	1.4500e-003	0.2316	0.0612	1.3400e-003	0.0625	0.0000	181.5708	181.5708	5.6800e-003	0.0000	181.7127
Total	**0.1587**	**1.5535**	**1.2971**	**5.3800e-003**	**0.3138**	**5.7900e-003**	**0.3196**	**0.0853**	**5.4900e-003**	**0.0908**	**0.0000**	**514.3773**	**514.3773**	**0.0310**	**0.0000**	**515.1524**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0229**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0229**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.7569**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.7400e-003	0.0155	4.0000e-005	4.4500e-003	3.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.5086	3.5086	1.1000e-004	0.0000	3.5114
Total	**2.1400e-003**	**1.7400e-003**	**0.0155**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4800e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.5086**	**3.5086**	**1.1000e-004**	**0.0000**	**3.5114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.7569**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.7400e-003	0.0155	4.0000e-005	4.4500e-003	3.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.5086	3.5086	1.1000e-004	0.0000	3.5114
Total	**2.1400e-003**	**1.7400e-003**	**0.0155**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4800e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.5086**	**3.5086**	**1.1000e-004**	**0.0000**	**3.5114**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2300e-003	0.0990	0.0336	2.3000e-004	5.6600e-003	2.9000e-004	5.9500e-003	1.6300e-003	2.8000e-004	1.9100e-003	0.0000	22.5087	22.5087	1.7100e-003	0.0000	22.5515
Worker	7.5000e-003	6.0900e-003	0.0541	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2300e-003	0.0000	12.2802	12.2802	3.8000e-004	0.0000	12.2898
Total	**0.0107**	**0.1051**	**0.0877**	**3.7000e-004**	**0.0212**	**3.9000e-004**	**0.0216**	**5.7700e-003**	**3.7000e-004**	**6.1400e-003**	**0.0000**	**34.7888**	**34.7888**	**2.0900e-003**	**0.0000**	**34.8412**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2300e-003	0.0990	0.0336	2.3000e-004	5.6600e-003	2.9000e-004	5.9500e-003	1.6300e-003	2.8000e-004	1.9100e-003	0.0000	22.5087	22.5087	1.7100e-003	0.0000	22.5515
Worker	7.5000e-003	6.0900e-003	0.0541	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2300e-003	0.0000	12.2802	12.2802	3.8000e-004	0.0000	12.2898
Total	**0.0107**	**0.1051**	**0.0877**	**3.7000e-004**	**0.0212**	**3.9000e-004**	**0.0216**	**5.7700e-003**	**3.7000e-004**	**6.1400e-003**	**0.0000**	**34.7888**	**34.7888**	**2.0900e-003**	**0.0000**	**34.8412**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2633	250.2633	0.0600	0.0000	251.7622
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2633**	**250.2633**	**0.0600**	**0.0000**	**251.7622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0459	1.4485	0.4776	3.4700e-003	0.0873	3.9800e-003	0.0913	0.0252	3.8100e-003	0.0290	0.0000	344.3392	344.3392	0.0268	0.0000	345.0085
Worker	0.1078	0.0839	0.7594	2.0200e-003	0.2401	1.4700e-003	0.2416	0.0638	1.3500e-003	0.0652	0.0000	182.7080	182.7080	5.2700e-003	0.0000	182.8398
Total	**0.1537**	**1.5325**	**1.2370**	**5.4900e-003**	**0.3274**	**5.4500e-003**	**0.3329**	**0.0890**	**5.1600e-003**	**0.0942**	**0.0000**	**527.0472**	**527.0472**	**0.0320**	**0.0000**	**527.8483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2630	250.2630	0.0600	0.0000	251.7619
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2630**	**250.2630**	**0.0600**	**0.0000**	**251.7619**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0459	1.4485	0.4776	3.4700e-003	0.0873	3.9800e-003	0.0913	0.0252	3.8100e-003	0.0290	0.0000	344.3392	344.3392	0.0268	0.0000	345.0085
Worker	0.1078	0.0839	0.7594	2.0200e-003	0.2401	1.4700e-003	0.2416	0.0638	1.3500e-003	0.0652	0.0000	182.7080	182.7080	5.2700e-003	0.0000	182.8398
Total	**0.1537**	**1.5325**	**1.2370**	**5.4900e-003**	**0.3274**	**5.4500e-003**	**0.3329**	**0.0890**	**5.1600e-003**	**0.0942**	**0.0000**	**527.0472**	**527.0472**	**0.0320**	**0.0000**	**527.8483**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.7568**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5500e-003	0.0141	4.0000e-005	4.4500e-003	3.0000e-005	4.4700e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.3835	3.3835	1.0000e-004	0.0000	3.3859
Total	**2.0000e-003**	**1.5500e-003**	**0.0141**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4700e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.3835**	**3.3835**	**1.0000e-004**	**0.0000**	**3.3859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.7568**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5500e-003	0.0141	4.0000e-005	4.4500e-003	3.0000e-005	4.4700e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.3835	3.3835	1.0000e-004	0.0000	3.3859
Total	**2.0000e-003**	**1.5500e-003**	**0.0141**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4700e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.3835**	**3.3835**	**1.0000e-004**	**0.0000**	**3.3859**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Unmitigated	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.6851	102.6851	5.9600e-003	1.2300e-003	103.2016
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.6851	102.6851	5.9600e-003	1.2300e-003	103.2016
NaturalGas Mitigated	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
NaturalGas Unmitigated	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.62765e+006	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
Total		**8.7800e-003**	**0.0750**	**0.0319**	**4.8000e-004**		**6.0600e-003**	**6.0600e-003**		**6.0600e-003**	**6.0600e-003**	**0.0000**	**86.8573**	**86.8573**	**1.6600e-003**	**1.5900e-003**	**87.3735**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.62765e+006	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
Total		**8.7800e-003**	**0.0750**	**0.0319**	**4.8000e-004**		**6.0600e-003**	**6.0600e-003**		**6.0600e-003**	**6.0600e-003**	**0.0000**	**86.8573**	**86.8573**	**1.6600e-003**	**1.5900e-003**	**87.3735**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	453072	102.6851	5.9600e-003	1.2300e-003	103.2016
Total		**102.6851**	**5.9600e-003**	**1.2300e-003**	**103.2016**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	453072	102.6851	5.9600e-003	1.2300e-003	103.2016
Total		**102.6851**	**5.9600e-003**	**1.2300e-003**	**103.2016**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Unmitigated	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6609					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0125	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Total	**0.7369**	**4.7900e-003**	**0.4158**	**2.0000e-005**		**2.3000e-003**	**2.3000e-003**		**2.3000e-003**	**2.3000e-003**	**0.0000**	**0.6795**	**0.6795**	**6.5000e-004**	**0.0000**	**0.6959**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6609					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0125	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Total	**0.7369**	**4.7900e-003**	**0.4158**	**2.0000e-005**		**2.3000e-003**	**2.3000e-003**		**2.3000e-003**	**2.3000e-003**	**0.0000**	**0.6795**	**0.6795**	**6.5000e-004**	**0.0000**	**0.6959**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.1624	4.3200e-003	2.4000e-003	14.9866
Unmitigated	17.7030	5.4000e-003	3.0000e-003	18.7332

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 12.7489	10.1130	5.9000e-004	1.2000e-004	10.1639
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.64863 / 2.30022	7.5901	4.8100e-003	2.8800e-003	8.5694
Total		**17.7031**	**5.4000e-003**	**3.0000e-003**	**18.7332**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.1991	8.0904	4.7000e-004	1.0000e-004	8.1311
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.9189 / 1.84018	6.0721	3.8500e-003	2.3100e-003	6.8555
Total		**14.1624**	**4.3200e-003**	**2.4100e-003**	**14.9866**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.0707	0.2019	0.0000	9.1171
Unmitigated	16.2829	0.8074	0.0000	36.4683

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.92	0.1911	9.4700e-003	0.0000	0.4279
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	77.49	16.0918	0.7979	0.0000	36.0404
Total		**16.2829**	**0.8074**	**0.0000**	**36.4683**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.23	0.0478	2.3700e-003	0.0000	0.1070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	19.3725	4.0230	0.1995	0.0000	9.0101
Total		**4.0707**	**0.2019**	**0.0000**	**9.1171**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:30 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5144	50.1483	23.6438	0.0468	18.3650	2.4073	20.7723	10.0063	2.2153	12.2217	0.0000	4,733.9078	4,733.9078	1.2830	0.0000	4,765.9827
2020	4.6191	54.7951	33.5033	0.0807	18.9765	2.2092	21.1857	10.1564	2.0329	12.1893	0.0000	8,208.7218	8,208.7218	2.0395	0.0000	8,232.6125
2021	75.9010	32.1908	28.7862	0.0796	3.0967	1.0137	4.1104	0.8400	0.9535	1.7935	0.0000	8,110.2504	8,110.2504	0.9410	0.0000	8,133.7742
2022	75.8722	29.5849	27.5328	0.0786	3.0967	0.8587	3.9553	0.8400	0.8082	1.6482	0.0000	8,010.9126	8,010.9126	0.9337	0.0000	8,034.2545
Maximum	**75.9010**	**54.7951**	**33.5033**	**0.0807**	**18.9765**	**2.4073**	**21.1857**	**10.1564**	**2.2153**	**12.2217**	**0.0000**	**8,208.7218**	**8,208.7218**	**2.0395**	**0.0000**	**8,232.6125**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5144	50.1483	23.6438	0.0468	7.3209	2.4073	9.7282	3.9450	2.2153	6.1604	0.0000	4,733.9078	4,733.9078	1.2830	0.0000	4,765.9827
2020	4.6191	54.7951	33.5033	0.0807	7.9324	2.2092	10.1416	4.0951	2.0329	6.1280	0.0000	8,208.7218	8,208.7218	2.0395	0.0000	8,232.6125
2021	75.9010	32.1908	28.7862	0.0796	3.0967	1.0137	4.1104	0.8400	0.9535	1.7935	0.0000	8,110.2504	8,110.2504	0.9410	0.0000	8,133.7742
2022	75.8722	29.5849	27.5328	0.0786	3.0967	0.8587	3.9553	0.8400	0.8082	1.6482	0.0000	8,010.9126	8,010.9126	0.9337	0.0000	8,034.2545
Maximum	**75.9010**	**54.7951**	**33.5033**	**0.0807**	**7.9324**	**2.4073**	**10.1416**	**4.0951**	**2.2153**	**6.1604**	**0.0000**	**8,208.7218**	**8,208.7218**	**2.0395**	**0.0000**	**8,232.6125**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.74**	**0.00**	**44.16**	**55.50**	**0.00**	**43.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Total	**4.9442**	**3.1127**	**12.1752**	**0.0249**	**2.1708**	**0.0775**	**2.2482**	**0.5817**	**0.0762**	**0.6579**	**0.0000**	**2,778.0156**	**2,778.0156**	**0.1220**	**9.6200e-003**	**2,783.9304**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Total	**4.9442**	**3.1127**	**12.1752**	**0.0249**	**2.1708**	**0.0775**	**2.2482**	**0.5817**	**0.0762**	**0.6579**	**0.0000**	**2,778.0156**	**2,778.0156**	**0.1220**	**9.6200e-003**	**2,783.9304**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.1051**	**2.3904**	**20.4954**	**9.9366**	**2.1991**	**12.1357**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1175	4.5260	1.1043	7.7700e-003	0.1462	0.0162	0.1624	0.0396	0.0155	0.0551		861.8888	861.8888	0.0874		864.0728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.1794**	**4.5756**	**1.5808**	**8.8300e-003**	**0.2599**	**0.0170**	**0.2769**	**0.0698**	**0.0162**	**0.0860**		**967.4549**	**967.4549**	**0.0913**		**969.7382**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0610**	**2.3904**	**9.4513**	**3.8753**	**2.1991**	**6.0744**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1175	4.5260	1.1043	7.7700e-003	0.1462	0.0162	0.1624	0.0396	0.0155	0.0551		861.8888	861.8888	0.0874		864.0728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.1794**	**4.5756**	**1.5808**	**8.8300e-003**	**0.2599**	**0.0170**	**0.2769**	**0.0698**	**0.0162**	**0.0860**		**967.4549**	**967.4549**	**0.0913**		**969.7382**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.1051**	**2.1974**	**20.3025**	**9.9366**	**2.0216**	**11.9582**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0999	4.2648	1.0091	7.7100e-003	0.7578	0.0111	0.7688	0.1897	0.0106	0.2003		858.8476	858.8476	0.0874		861.0332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.1561**	**4.3084**	**1.4309**	**8.7400e-003**	**0.8714**	**0.0118**	**0.8832**	**0.2199**	**0.0113**	**0.2311**		**961.1648**	**961.1648**	**0.0908**		**963.4360**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0610**	**2.1974**	**9.2584**	**3.8753**	**2.0216**	**5.8969**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0999	4.2648	1.0091	7.7100e-003	0.7578	0.0111	0.7688	0.1897	0.0106	0.2003		858.8476	858.8476	0.0874		861.0332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.1561**	**4.3084**	**1.4309**	**8.7400e-003**	**0.8714**	**0.0118**	**0.8832**	**0.2199**	**0.0113**	**0.2311**		**961.1648**	**961.1648**	**0.0908**		**963.4360**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7147	0.0000	8.7147	3.6028	0.0000	3.6028			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.7147**	**2.1739**	**10.8886**	**3.6028**	**2.0000**	**5.6028**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.5491	1.0764	8.2300e-003	0.1393	0.0118	0.1511	0.0382	0.0113	0.0495		916.1041	916.1041	0.0933		918.4354
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.1690**	**4.5976**	**1.5450**	**9.3700e-003**	**0.2656**	**0.0126**	**0.2782**	**0.0717**	**0.0121**	**0.0837**		**1,029.7899**	**1,029.7899**	**0.0971**		**1,032.2163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3988	0.0000	3.3988	1.4051	0.0000	1.4051			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3988**	**2.1739**	**5.5727**	**1.4051**	**2.0000**	**3.4051**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.5491	1.0764	8.2300e-003	0.1393	0.0118	0.1511	0.0382	0.0113	0.0495		916.1041	916.1041	0.0933		918.4354
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.1690**	**4.5976**	**1.5450**	**9.3700e-003**	**0.2656**	**0.0126**	**0.2782**	**0.0717**	**0.0121**	**0.0837**		**1,029.7899**	**1,029.7899**	**0.0971**		**1,032.2163**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5448	15.2321	5.1273	0.0332	0.8232	0.0820	0.9051	0.2369	0.0784	0.3153		3,609.3141	3,609.3141	0.2643		3,615.9213
Worker	1.1254	0.8723	8.4359	0.0206	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		2,046.3447	2,046.3447	0.0685		2,048.0567
Total	**1.6702**	**16.1045**	**13.5632**	**0.0538**	**3.0967**	**0.0965**	**3.1932**	**0.8400**	**0.0918**	**0.9318**		**5,655.6588**	**5,655.6588**	**0.3328**		**5,663.9780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5448	15.2321	5.1273	0.0332	0.8232	0.0820	0.9051	0.2369	0.0784	0.3153		3,609.3141	3,609.3141	0.2643		3,615.9213
Worker	1.1254	0.8723	8.4359	0.0206	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		2,046.3447	2,046.3447	0.0685		2,048.0567
Total	**1.6702**	**16.1045**	**13.5632**	**0.0538**	**3.0967**	**0.0965**	**3.1932**	**0.8400**	**0.0918**	**0.9318**		**5,655.6588**	**5,655.6588**	**0.3328**		**5,663.9780**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2086	0.1554	1.5290	3.9700e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		395.3692	395.3692	0.0122		395.6731
Total	**0.2086**	**0.1554**	**1.5290**	**3.9700e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**395.3692**	**395.3692**	**0.0122**		**395.6731**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2086	0.1554	1.5290	3.9700e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		395.3692	395.3692	0.0122		395.6731
Total	**0.2086**	**0.1554**	**1.5290**	**3.9700e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**395.3692**	**395.3692**	**0.0122**		**395.6731**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4140	13.2749	4.2038	0.0325	0.8231	0.0360	0.8591	0.2368	0.0345	0.2713		3,550.2527	3,550.2527	0.2676		3,556.9428
Worker	0.9712	0.6944	6.9656	0.0191	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,906.3263	1,906.3263	0.0541		1,907.6794
Total	**1.3852**	**13.9692**	**11.1694**	**0.0516**	**3.0967**	**0.0497**	**3.1463**	**0.8400**	**0.0470**	**0.8870**		**5,456.5790**	**5,456.5790**	**0.3217**		**5,464.6223**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4140	13.2749	4.2038	0.0325	0.8231	0.0360	0.8591	0.2368	0.0345	0.2713		3,550.2527	3,550.2527	0.2676		3,556.9428
Worker	0.9712	0.6944	6.9656	0.0191	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,906.3263	1,906.3263	0.0541		1,907.6794
Total	**1.3852**	**13.9692**	**11.1694**	**0.0516**	**3.0967**	**0.0497**	**3.1463**	**0.8400**	**0.0470**	**0.8870**		**5,456.5790**	**5,456.5790**	**0.3217**		**5,464.6223**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1942	0.1389	1.3931	3.8300e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		381.2653	381.2653	0.0108		381.5359
Total	**0.1942**	**0.1389**	**1.3931**	**3.8300e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**381.2653**	**381.2653**	**0.0108**		**381.5359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1942	0.1389	1.3931	3.8300e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		381.2653	381.2653	0.0108		381.5359
Total	**0.1942**	**0.1389**	**1.3931**	**3.8300e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**381.2653**	**381.2653**	**0.0108**		**381.5359**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Unmitigated	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
NaturalGas Unmitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4459.3	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.4593	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Unmitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:34 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5302	50.0948	23.8202	0.0465	18.3650	2.4086	20.7736	10.0063	2.2165	12.2228	0.0000	4,697.3764	4,697.3764	1.2882	0.0000	4,729.5809
2020	4.6342	54.7382	33.6671	0.0795	18.9765	2.2101	21.1866	10.1564	2.0338	12.1902	0.0000	8,077.2231	8,077.2231	2.0447	0.0000	8,101.4281
2021	75.9278	32.2473	29.5258	0.0784	3.0967	1.0158	4.1125	0.8400	0.9555	1.7955	0.0000	7,980.0466	7,980.0466	0.9533	0.0000	8,003.8796
2022	75.8976	29.6224	28.1975	0.0774	3.0967	0.8606	3.9573	0.8400	0.8100	1.6500	0.0000	7,881.8994	7,881.8994	0.9462	0.0000	7,905.5533
Maximum	**75.9278**	**54.7382**	**33.6671**	**0.0795**	**18.9765**	**2.4086**	**21.1866**	**10.1564**	**2.2165**	**12.2228**	**0.0000**	**8,077.2231**	**8,077.2231**	**2.0447**	**0.0000**	**8,101.4281**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5302	50.0948	23.8202	0.0465	7.3209	2.4086	9.7295	3.9450	2.2165	6.1615	0.0000	4,697.3764	4,697.3764	1.2882	0.0000	4,729.5809
2020	4.6342	54.7382	33.6671	0.0795	7.9324	2.2101	10.1425	4.0951	2.0338	6.1289	0.0000	8,077.2231	8,077.2231	2.0447	0.0000	8,101.4281
2021	75.9278	32.2473	29.5258	0.0784	3.0967	1.0158	4.1125	0.8400	0.9555	1.7955	0.0000	7,980.0466	7,980.0466	0.9533	0.0000	8,003.8796
2022	75.8976	29.6224	28.1975	0.0774	3.0967	0.8606	3.9573	0.8400	0.8100	1.6500	0.0000	7,881.8994	7,881.8994	0.9462	0.0000	7,905.5533
Maximum	**75.9278**	**54.7382**	**33.6671**	**0.0795**	**7.9324**	**2.4086**	**10.1425**	**4.0951**	**2.2165**	**6.1615**	**0.0000**	**8,077.2231**	**8,077.2231**	**2.0447**	**0.0000**	**8,101.4281**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.74**	**0.00**	**44.15**	**55.50**	**0.00**	**43.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Total	**4.9263**	**3.1991**	**12.6958**	**0.0244**	**2.1708**	**0.0776**	**2.2483**	**0.5817**	**0.0763**	**0.6580**	**0.0000**	**2,727.6339**	**2,727.6339**	**0.1254**	**9.6200e-003**	**2,733.6359**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Total	**4.9263**	**3.1991**	**12.6958**	**0.0244**	**2.1708**	**0.0776**	**2.2483**	**0.5817**	**0.0763**	**0.6580**	**0.0000**	**2,727.6339**	**2,727.6339**	**0.1254**	**9.6200e-003**	**2,733.6359**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.1051**	**2.3904**	**20.4954**	**9.9366**	**2.1991**	**12.1357**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1254	4.4653	1.2602	7.4700e-003	0.1462	0.0175	0.1637	0.0396	0.0167	0.0563		827.7967	827.7967	0.0925		830.1092
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1952**	**4.5221**	**1.7572**	**8.5100e-003**	**0.2599**	**0.0182**	**0.2781**	**0.0698**	**0.0174**	**0.0872**		**930.9235**	**930.9235**	**0.0965**		**933.3363**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0610**	**2.3904**	**9.4513**	**3.8753**	**2.1991**	**6.0744**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1254	4.4653	1.2602	7.4700e-003	0.1462	0.0175	0.1637	0.0396	0.0167	0.0563		827.7967	827.7967	0.0925		830.1092
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1952**	**4.5221**	**1.7572**	**8.5100e-003**	**0.2599**	**0.0182**	**0.2781**	**0.0698**	**0.0174**	**0.0872**		**930.9235**	**930.9235**	**0.0965**		**933.3363**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.1051**	**2.1974**	**20.3025**	**9.9366**	**2.0216**	**11.9582**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.2049	1.1456	7.4000e-003	0.7578	0.0120	0.7697	0.1897	0.0115	0.2012		823.8736	823.8736	0.0923		826.1818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.1700**	**4.2548**	**1.5837**	**8.4000e-003**	**0.8714**	**0.0127**	**0.8841**	**0.2199**	**0.0121**	**0.2320**		**923.8245**	**923.8245**	**0.0958**		**926.2186**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0610**	**2.1974**	**9.2584**	**3.8753**	**2.0216**	**5.8969**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.2049	1.1456	7.4000e-003	0.7578	0.0120	0.7697	0.1897	0.0115	0.2012		823.8736	823.8736	0.0923		826.1818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.1700**	**4.2548**	**1.5837**	**8.4000e-003**	**0.8714**	**0.0127**	**0.8841**	**0.2199**	**0.0121**	**0.2320**		**923.8245**	**923.8245**	**0.0958**		**926.2186**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7147	0.0000	8.7147	3.6028	0.0000	3.6028			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.7147**	**2.1739**	**10.8886**	**3.6028**	**2.0000**	**5.6028**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1136	4.4852	1.2220	7.8900e-003	0.1393	0.0128	0.1521	0.0382	0.0122	0.0504		878.7985	878.7985	0.0985		881.2605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1841**	**4.5406**	**1.7088**	**9.0100e-003**	**0.2656**	**0.0136**	**0.2792**	**0.0717**	**0.0130**	**0.0846**		**989.8551**	**989.8551**	**0.1023**		**992.4126**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3988	0.0000	3.3988	1.4051	0.0000	1.4051			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3988**	**2.1739**	**5.5727**	**1.4051**	**2.0000**	**3.4051**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1136	4.4852	1.2220	7.8900e-003	0.1393	0.0128	0.1521	0.0382	0.0122	0.0504		878.7985	878.7985	0.0985		881.2605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1841**	**4.5406**	**1.7088**	**9.0100e-003**	**0.2656**	**0.0136**	**0.2792**	**0.0717**	**0.0130**	**0.0846**		**989.8551**	**989.8551**	**0.1023**		**992.4126**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5745	15.1916	5.6317	0.0325	0.8232	0.0844	0.9075	0.2369	0.0807	0.3175		3,525.1417	3,525.1417	0.2766		3,532.0563
Worker	1.2692	0.9980	8.7619	0.0201	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		1,999.0183	1,999.0183	0.0688		2,000.7374
Total	**1.8437**	**16.1896**	**14.3936**	**0.0526**	**3.0967**	**0.0988**	**3.1956**	**0.8400**	**0.0940**	**0.9341**		**5,524.1600**	**5,524.1600**	**0.3453**		**5,532.7937**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5745	15.1916	5.6317	0.0325	0.8232	0.0844	0.9075	0.2369	0.0807	0.3175		3,525.1417	3,525.1417	0.2766		3,532.0563
Worker	1.2692	0.9980	8.7619	0.0201	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		1,999.0183	1,999.0183	0.0688		2,000.7374
Total	**1.8437**	**16.1896**	**14.3936**	**0.0526**	**3.0967**	**0.0988**	**3.1956**	**0.8400**	**0.0940**	**0.9341**		**5,524.1600**	**5,524.1600**	**0.3453**		**5,532.7937**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2355	0.1778	1.5846	3.8800e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		386.2265	386.2265	0.0122		386.5309
Total	**0.2355**	**0.1778**	**1.5846**	**3.8800e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**386.2265**	**386.2265**	**0.0122**		**386.5309**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2355	0.1778	1.5846	3.8800e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		386.2265	386.2265	0.0122		386.5309
Total	**0.2355**	**0.1778**	**1.5846**	**3.8800e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**386.2265**	**386.2265**	**0.0122**		**386.5309**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4388	13.2126	4.6337	0.0317	0.8231	0.0380	0.8611	0.2368	0.0363	0.2732		3,465.3048	3,465.3048	0.2801		3,472.3076
Worker	1.0981	0.7942	7.2004	0.0187	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,862.2610	1,862.2610	0.0541		1,863.6136
Total	**1.5369**	**14.0067**	**11.8341**	**0.0505**	**3.0967**	**0.0516**	**3.1483**	**0.8400**	**0.0489**	**0.8889**		**5,327.5658**	**5,327.5658**	**0.3342**		**5,335.9211**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4388	13.2126	4.6337	0.0317	0.8231	0.0380	0.8611	0.2368	0.0363	0.2732		3,465.3048	3,465.3048	0.2801		3,472.3076
Worker	1.0981	0.7942	7.2004	0.0187	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,862.2610	1,862.2610	0.0541		1,863.6136
Total	**1.5369**	**14.0067**	**11.8341**	**0.0505**	**3.0967**	**0.0516**	**3.1483**	**0.8400**	**0.0489**	**0.8889**		**5,327.5658**	**5,327.5658**	**0.3342**		**5,335.9211**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2196	0.1588	1.4401	3.7400e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		372.4522	372.4522	0.0108		372.7227
Total	**0.2196**	**0.1588**	**1.4401**	**3.7400e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**372.4522**	**372.4522**	**0.0108**		**372.7227**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2196	0.1588	1.4401	3.7400e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		372.4522	372.4522	0.0108		372.7227
Total	**0.2196**	**0.1588**	**1.4401**	**3.7400e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**372.4522**	**372.4522**	**0.0108**		**372.7227**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Unmitigated	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
NaturalGas Unmitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4459.3	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.4593	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Unmitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:39 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).
Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.
Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3372	3.5786	1.7423	3.1500e-003	1.3861	0.1821	1.5682	0.7581	0.1676	0.9257	0.0000	285.5310	285.5310	0.0844	0.0000	287.6414
2020	0.4704	5.2102	3.3349	6.8700e-003	0.9891	0.2202	1.2092	0.4309	0.2029	0.6338	0.0000	611.0270	611.0270	0.1715	0.0000	615.3136
2021	1.3496	3.8037	3.4663	9.2900e-003	0.3568	0.1202	0.4769	0.0969	0.1129	0.2099	0.0000	857.1664	857.1664	0.1031	0.0000	859.7443
2022	1.3118	3.4738	3.3013	9.1200e-003	0.3552	0.1013	0.4565	0.0965	0.0953	0.1918	0.0000	843.0057	843.0057	0.1019	0.0000	845.5535
2023	1.0051	3.1333	3.2368	9.1800e-003	0.3633	0.0884	0.4517	0.0987	0.0831	0.1818	0.0000	849.1891	849.1891	0.1022	0.0000	851.7434
2024	0.2812	4.0500e-003	9.1600e-003	2.0000e-005	1.4100e-003	1.9000e-004	1.6000e-003	3.7000e-004	1.9000e-004	5.6000e-004	0.0000	1.7574	1.7574	7.0000e-005	0.0000	1.7591
Maximum	**1.3496**	**5.2102**	**3.4663**	**9.2900e-003**	**1.3861**	**0.2202**	**1.5682**	**0.7581**	**0.2029**	**0.9257**	**0.0000**	**857.1664**	**857.1664**	**0.1715**	**0.0000**	**859.7443**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3372	3.5786	1.7423	3.1500e-003	0.5479	0.1821	0.7300	0.2976	0.1676	0.4652	0.0000	285.5306	285.5306	0.0844	0.0000	287.6411
2020	0.4704	5.2102	3.3349	6.8700e-003	0.4190	0.2202	0.6392	0.1770	0.2029	0.3799	0.0000	611.0264	611.0264	0.1715	0.0000	615.3129
2021	1.3496	3.8037	3.4663	9.2900e-003	0.3568	0.1201	0.4769	0.0969	0.1129	0.2099	0.0000	857.1661	857.1661	0.1031	0.0000	859.7439
2022	1.3118	3.4738	3.3013	9.1200e-003	0.3552	0.1013	0.4565	0.0965	0.0953	0.1918	0.0000	843.0054	843.0054	0.1019	0.0000	845.5532
2023	1.0051	3.1333	3.2368	9.1800e-003	0.3633	0.0884	0.4517	0.0987	0.0831	0.1818	0.0000	849.1888	849.1888	0.1022	0.0000	851.7430
2024	0.2812	4.0500e-003	9.1600e-003	2.0000e-005	1.4100e-003	1.9000e-004	1.6000e-003	3.7000e-004	1.9000e-004	5.6000e-004	0.0000	1.7574	1.7574	7.0000e-005	0.0000	1.7591
Maximum	**1.3496**	**5.2102**	**3.4663**	**9.2900e-003**	**0.5479**	**0.2202**	**0.7300**	**0.2976**	**0.2029**	**0.4652**	**0.0000**	**857.1661**	**857.1661**	**0.1715**	**0.0000**	**859.7439**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**40.80**	**0.00**	**33.82**	**48.22**	**0.00**	**33.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Energy	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	304.6218	304.6218	0.0123	4.5400e-003	306.2813
Mobile	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Waste						0.0000	0.0000		0.0000	0.0000	25.9891	0.0000	25.9891	1.2887	0.0000	58.2069
Water						0.0000	0.0000		0.0000	0.0000	2.0746	20.2367	22.3113	8.3200e-003	4.7500e-003	23.9361
Total	**1.1631**	**0.8924**	**2.8469**	**6.8400e-003**	**0.5921**	**0.0187**	**0.6107**	**0.1589**	**0.0183**	**0.1773**	**28.0637**	**882.8583**	**910.9220**	**1.3370**	**9.2900e-003**	**947.1169**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Energy	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	304.6218	304.6218	0.0123	4.5400e-003	306.2813
Mobile	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Waste						0.0000	0.0000		0.0000	0.0000	6.4973	0.0000	6.4973	0.3222	0.0000	14.5517
Water						0.0000	0.0000		0.0000	0.0000	1.6597	16.1893	17.8490	6.6500e-003	3.8000e-003	19.1489
Total	**1.1631**	**0.8924**	**2.8469**	**6.8400e-003**	**0.5921**	**0.0187**	**0.6107**	**0.1589**	**0.0183**	**0.1773**	**8.1570**	**878.8109**	**886.9679**	**0.3688**	**8.3400e-003**	**898.6744**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**70.93**	**0.46**	**2.63**	**72.42**	**10.23**	**5.11**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3741	0.0000	1.3741	0.7549	0.0000	0.7549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6820	259.6820	0.0822	0.0000	261.7360
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**1.3741**	**0.1817**	**1.5558**	**0.7549**	**0.1671**	**0.9220**	**0.0000**	**259.6820**	**259.6820**	**0.0822**	**0.0000**	**261.7360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9500e-003	0.1109	0.0287	1.9000e-004	3.4900e-003	4.1000e-004	3.9000e-003	9.5000e-004	3.9000e-004	1.3400e-003	0.0000	18.7290	18.7290	1.9800e-003	0.0000	18.7785
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**7.7800e-003**	**0.1151**	**0.0655**	**2.7000e-004**	**0.0119**	**4.7000e-004**	**0.0124**	**3.2000e-003**	**4.4000e-004**	**3.6400e-003**	**0.0000**	**25.8489**	**25.8489**	**2.2500e-003**	**0.0000**	**25.9054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5359	0.0000	0.5359	0.2944	0.0000	0.2944	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6817	259.6817	0.0822	0.0000	261.7357
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**0.5359**	**0.1817**	**0.7176**	**0.2944**	**0.1671**	**0.4615**	**0.0000**	**259.6817**	**259.6817**	**0.0822**	**0.0000**	**261.7357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9500e-003	0.1109	0.0287	1.9000e-004	3.4900e-003	4.1000e-004	3.9000e-003	9.5000e-004	3.9000e-004	1.3400e-003	0.0000	18.7290	18.7290	1.9800e-003	0.0000	18.7785
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**7.7800e-003**	**0.1151**	**0.0655**	**2.7000e-004**	**0.0119**	**4.7000e-004**	**0.0124**	**3.2000e-003**	**4.4000e-004**	**3.6400e-003**	**0.0000**	**25.8489**	**25.8489**	**2.2500e-003**	**0.0000**	**25.9054**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2179	0.0000	0.2179	0.1193	0.0000	0.1193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4412
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2179**	**0.0264**	**0.2443**	**0.1193**	**0.0243**	**0.1436**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4412**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0165	4.1300e-003	3.0000e-005	2.8400e-003	4.0000e-005	2.8900e-003	7.1000e-004	4.0000e-005	7.5000e-004	0.0000	2.9453	2.9453	3.1000e-004	0.0000	2.9531
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.0900e-003**	**0.0171**	**9.2600e-003**	**4.0000e-005**	**4.1700e-003**	**5.0000e-005**	**4.2300e-003**	**1.0600e-003**	**5.0000e-005**	**1.1100e-003**	**0.0000**	**4.0349**	**4.0349**	**3.5000e-004**	**0.0000**	**4.0436**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0850	0.0000	0.0850	0.0465	0.0000	0.0465	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4411
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.0850**	**0.0264**	**0.1114**	**0.0465**	**0.0243**	**0.0708**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4411**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0165	4.1300e-003	3.0000e-005	2.8400e-003	4.0000e-005	2.8900e-003	7.1000e-004	4.0000e-005	7.5000e-004	0.0000	2.9453	2.9453	3.1000e-004	0.0000	2.9531
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.0900e-003**	**0.0171**	**9.2600e-003**	**4.0000e-005**	**4.1700e-003**	**5.0000e-005**	**4.2300e-003**	**1.0600e-003**	**5.0000e-005**	**1.1100e-003**	**0.0000**	**4.0349**	**4.0349**	**3.5000e-004**	**0.0000**	**4.0436**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7166	0.0000	0.7166	0.2969	0.0000	0.2969	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4954	449.4954	0.1454	0.0000	453.1298
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.7166**	**0.1794**	**0.8960**	**0.2969**	**0.1650**	**0.4619**	**0.0000**	**449.4954**	**449.4954**	**0.1454**	**0.0000**	**453.1298**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-003	0.1209	0.0303	2.1000e-004	3.6100e-003	3.2000e-004	3.9400e-003	9.9000e-004	3.1000e-004	1.3000e-003	0.0000	21.5989	21.5989	2.2900e-003	0.0000	21.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**8.2000e-003**	**0.1253**	**0.0694**	**3.0000e-004**	**0.0138**	**3.9000e-004**	**0.0142**	**3.7000e-003**	**3.7000e-004**	**4.0700e-003**	**0.0000**	**29.9221**	**29.9221**	**2.5700e-003**	**0.0000**	**29.9865**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2795	0.0000	0.2795	0.1158	0.0000	0.1158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4949	449.4949	0.1454	0.0000	453.1293
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.2795**	**0.1794**	**0.4588**	**0.1158**	**0.1650**	**0.2808**	**0.0000**	**449.4949**	**449.4949**	**0.1454**	**0.0000**	**453.1293**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-003	0.1209	0.0303	2.1000e-004	3.6100e-003	3.2000e-004	3.9400e-003	9.9000e-004	3.1000e-004	1.3000e-003	0.0000	21.5989	21.5989	2.2900e-003	0.0000	21.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**8.2000e-003**	**0.1253**	**0.0694**	**3.0000e-004**	**0.0138**	**3.9000e-004**	**0.0142**	**3.7000e-003**	**3.7000e-004**	**4.0700e-003**	**0.0000**	**29.9221**	**29.9221**	**2.5700e-003**	**0.0000**	**29.9865**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6352	26.6352	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6352**	**26.6352**	**6.5000e-003**	**0.0000**	**26.7976**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-003	0.1851	0.0646	3.9000e-004	9.7000e-003	1.0000e-003	0.0107	2.8000e-003	9.5000e-004	3.7500e-003	0.0000	38.8947	38.8947	2.9400e-003	0.0000	38.9682
Worker	0.0140	0.0118	0.1032	2.4000e-004	0.0269	1.7000e-004	0.0270	7.1300e-003	1.6000e-004	7.3000e-003	0.0000	21.9279	21.9279	7.5000e-004	0.0000	21.9466
Total	**0.0207**	**0.1969**	**0.1678**	**6.3000e-004**	**0.0366**	**1.1700e-003**	**0.0377**	**9.9300e-003**	**1.1100e-003**	**0.0111**	**0.0000**	**60.8227**	**60.8227**	**3.6900e-003**	**0.0000**	**60.9148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6351	26.6351	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6351**	**26.6351**	**6.5000e-003**	**0.0000**	**26.7976**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-003	0.1851	0.0646	3.9000e-004	9.7000e-003	1.0000e-003	0.0107	2.8000e-003	9.5000e-004	3.7500e-003	0.0000	38.8947	38.8947	2.9400e-003	0.0000	38.9682
Worker	0.0140	0.0118	0.1032	2.4000e-004	0.0269	1.7000e-004	0.0270	7.1300e-003	1.6000e-004	7.3000e-003	0.0000	21.9279	21.9279	7.5000e-004	0.0000	21.9466
Total	**0.0207**	**0.1969**	**0.1678**	**6.3000e-004**	**0.0366**	**1.1700e-003**	**0.0377**	**9.9300e-003**	**1.1100e-003**	**0.0111**	**0.0000**	**60.8227**	**60.8227**	**3.6900e-003**	**0.0000**	**60.9148**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7446	239.7446	0.0578	0.0000	241.1906
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7446**	**239.7446**	**0.0578**	**0.0000**	**241.1906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0499	1.5266	0.5185	3.5100e-003	0.0873	4.5300e-003	0.0918	0.0252	4.3300e-003	0.0295	0.0000	347.1723	347.1723	0.0264	0.0000	347.8328
Worker	0.1165	0.0945	0.8401	2.1100e-003	0.2416	1.5200e-003	0.2432	0.0642	1.4000e-003	0.0656	0.0000	190.6493	190.6493	5.9600e-003	0.0000	190.7984
Total	**0.1664**	**1.6211**	**1.3586**	**5.6200e-003**	**0.3289**	**6.0500e-003**	**0.3350**	**0.0894**	**5.7300e-003**	**0.0951**	**0.0000**	**537.8216**	**537.8216**	**0.0324**	**0.0000**	**538.6311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7443	239.7443	0.0578	0.0000	241.1903
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7443**	**239.7443**	**0.0578**	**0.0000**	**241.1903**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0499	1.5266	0.5185	3.5100e-003	0.0873	4.5300e-003	0.0918	0.0252	4.3300e-003	0.0295	0.0000	347.1723	347.1723	0.0264	0.0000	347.8328
Worker	0.1165	0.0945	0.8401	2.1100e-003	0.2416	1.5200e-003	0.2432	0.0642	1.4000e-003	0.0656	0.0000	190.6493	190.6493	5.9600e-003	0.0000	190.7984
Total	**0.1664**	**1.6211**	**1.3586**	**5.6200e-003**	**0.3289**	**6.0500e-003**	**0.3350**	**0.0894**	**5.7300e-003**	**0.0951**	**0.0000**	**537.8216**	**537.8216**	**0.0324**	**0.0000**	**538.6311**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0233**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0233**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.9359**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e-003	1.8400e-003	0.0163	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.7035	3.7035	1.2000e-004	0.0000	3.7064
Total	**2.2600e-003**	**1.8400e-003**	**0.0163**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.7035**	**3.7035**	**1.2000e-004**	**0.0000**	**3.7064**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.9359**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e-003	1.8400e-003	0.0163	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.7035	3.7035	1.2000e-004	0.0000	3.7064
Total	**2.2600e-003**	**1.8400e-003**	**0.0163**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.7035**	**3.7035**	**1.2000e-004**	**0.0000**	**3.7064**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1033	0.0351	2.4000e-004	5.9000e-003	3.1000e-004	6.2100e-003	1.7000e-003	2.9000e-004	2.0000e-003	0.0000	23.4803	23.4803	1.7900e-003	0.0000	23.5249
Worker	7.8800e-003	6.3900e-003	0.0568	1.4000e-004	0.0163	1.0000e-004	0.0165	4.3400e-003	9.0000e-005	4.4400e-003	0.0000	12.8942	12.8942	4.0000e-004	0.0000	12.9042
Total	**0.0113**	**0.1096**	**0.0919**	**3.8000e-004**	**0.0222**	**4.1000e-004**	**0.0227**	**6.0400e-003**	**3.8000e-004**	**6.4400e-003**	**0.0000**	**36.3744**	**36.3744**	**2.1900e-003**	**0.0000**	**36.4292**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1033	0.0351	2.4000e-004	5.9000e-003	3.1000e-004	6.2100e-003	1.7000e-003	2.9000e-004	2.0000e-003	0.0000	23.4803	23.4803	1.7900e-003	0.0000	23.5249
Worker	7.8800e-003	6.3900e-003	0.0568	1.4000e-004	0.0163	1.0000e-004	0.0165	4.3400e-003	9.0000e-005	4.4400e-003	0.0000	12.8942	12.8942	4.0000e-004	0.0000	12.9042
Total	**0.0113**	**0.1096**	**0.0919**	**3.8000e-004**	**0.0222**	**4.1000e-004**	**0.0227**	**6.0400e-003**	**3.8000e-004**	**6.4400e-003**	**0.0000**	**36.3744**	**36.3744**	**2.1900e-003**	**0.0000**	**36.4292**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2633	250.2633	0.0600	0.0000	251.7622
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2633**	**250.2633**	**0.0600**	**0.0000**	**251.7622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0479	1.5111	0.4983	3.6200e-003	0.0911	4.1500e-003	0.0952	0.0263	3.9700e-003	0.0302	0.0000	359.2028	359.2028	0.0279	0.0000	359.9010
Worker	0.1132	0.0881	0.7974	2.1200e-003	0.2522	1.5400e-003	0.2537	0.0670	1.4200e-003	0.0684	0.0000	191.8434	191.8434	5.5300e-003	0.0000	191.9818
Total	**0.1611**	**1.5992**	**1.2956**	**5.7400e-003**	**0.3432**	**5.6900e-003**	**0.3489**	**0.0933**	**5.3900e-003**	**0.0987**	**0.0000**	**551.0462**	**551.0462**	**0.0335**	**0.0000**	**551.8827**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2630	250.2630	0.0600	0.0000	251.7619
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2630**	**250.2630**	**0.0600**	**0.0000**	**251.7619**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0479	1.5111	0.4983	3.6200e-003	0.0911	4.1500e-003	0.0952	0.0263	3.9700e-003	0.0302	0.0000	359.2028	359.2028	0.0279	0.0000	359.9010
Worker	0.1132	0.0881	0.7974	2.1200e-003	0.2522	1.5400e-003	0.2537	0.0670	1.4200e-003	0.0684	0.0000	191.8434	191.8434	5.5300e-003	0.0000	191.9818
Total	**0.1611**	**1.5992**	**1.2956**	**5.7400e-003**	**0.3432**	**5.6900e-003**	**0.3489**	**0.0933**	**5.3900e-003**	**0.0987**	**0.0000**	**551.0462**	**551.0462**	**0.0335**	**0.0000**	**551.8827**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.9358**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.6400e-003	0.0148	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.5715	3.5715	1.0000e-004	0.0000	3.5740
Total	**2.1100e-003**	**1.6400e-003**	**0.0148**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.5715**	**3.5715**	**1.0000e-004**	**0.0000**	**3.5740**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.9358**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.6400e-003	0.0148	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.5715	3.5715	1.0000e-004	0.0000	3.5740
Total	**2.1100e-003**	**1.6400e-003**	**0.0148**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.5715**	**3.5715**	**1.0000e-004**	**0.0000**	**3.5740**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4100e-003	0.0312	0.0327	5.0000e-005		1.6200e-003	1.6200e-003		1.5200e-003	1.5200e-003	0.0000	4.6345	4.6345	1.1100e-003	0.0000	4.6623
Total	**3.4100e-003**	**0.0312**	**0.0327**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**4.6345**	**4.6345**	**1.1100e-003**	**0.0000**	**4.6623**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0280	9.2300e-003	7.0000e-005	1.6900e-003	8.0000e-005	1.7600e-003	4.9000e-004	7.0000e-005	5.6000e-004	0.0000	6.6519	6.6519	5.2000e-004	0.0000	6.6648
Worker	2.1000e-003	1.6300e-003	0.0148	4.0000e-005	4.6700e-003	3.0000e-005	4.7000e-003	1.2400e-003	3.0000e-005	1.2700e-003	0.0000	3.5527	3.5527	1.0000e-004	0.0000	3.5552
Total	**2.9900e-003**	**0.0296**	**0.0240**	**1.1000e-004**	**6.3600e-003**	**1.1000e-004**	**6.4600e-003**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**0.0000**	**10.2046**	**10.2046**	**6.2000e-004**	**0.0000**	**10.2201**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4100e-003	0.0312	0.0327	5.0000e-005		1.6200e-003	1.6200e-003		1.5200e-003	1.5200e-003	0.0000	4.6345	4.6345	1.1100e-003	0.0000	4.6623
Total	**3.4100e-003**	**0.0312**	**0.0327**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**4.6345**	**4.6345**	**1.1100e-003**	**0.0000**	**4.6623**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0280	9.2300e-003	7.0000e-005	1.6900e-003	8.0000e-005	1.7600e-003	4.9000e-004	7.0000e-005	5.6000e-004	0.0000	6.6519	6.6519	5.2000e-004	0.0000	6.6648
Worker	2.1000e-003	1.6300e-003	0.0148	4.0000e-005	4.6700e-003	3.0000e-005	4.7000e-003	1.2400e-003	3.0000e-005	1.2700e-003	0.0000	3.5527	3.5527	1.0000e-004	0.0000	3.5552
Total	**2.9900e-003**	**0.0296**	**0.0240**	**1.1000e-004**	**6.3600e-003**	**1.1000e-004**	**6.4600e-003**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**0.0000**	**10.2046**	**10.2046**	**6.2000e-004**	**0.0000**	**10.2201**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6255	1.8356	3.0400e-003		0.0791	0.0791		0.0744	0.0744	0.0000	261.9394	261.9394	0.0623	0.0000	263.4972
Total	**0.1777**	**1.6255**	**1.8356**	**3.0400e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**261.9394**	**261.9394**	**0.0623**	**0.0000**	**263.4972**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0390	1.3129	0.4696	3.7100e-003	0.0953	2.0800e-003	0.0974	0.0275	1.9900e-003	0.0295	0.0000	369.1262	369.1262	0.0280	0.0000	369.8271
Worker	0.1106	0.0826	0.7610	2.1400e-003	0.2638	1.5700e-003	0.2654	0.0701	1.4500e-003	0.0716	0.0000	193.2243	193.2243	5.1600e-003	0.0000	193.3532
Total	**0.1496**	**1.3955**	**1.2305**	**5.8500e-003**	**0.3591**	**3.6500e-003**	**0.3627**	**0.0976**	**3.4400e-003**	**0.1010**	**0.0000**	**562.3504**	**562.3504**	**0.0332**	**0.0000**	**563.1803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6255	1.8356	3.0400e-003		0.0791	0.0791		0.0744	0.0744	0.0000	261.9391	261.9391	0.0623	0.0000	263.4968
Total	**0.1777**	**1.6255**	**1.8356**	**3.0400e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**261.9391**	**261.9391**	**0.0623**	**0.0000**	**263.4968**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0390	1.3129	0.4696	3.7100e-003	0.0953	2.0800e-003	0.0974	0.0275	1.9900e-003	0.0295	0.0000	369.1262	369.1262	0.0280	0.0000	369.8271
Worker	0.1106	0.0826	0.7610	2.1400e-003	0.2638	1.5700e-003	0.2654	0.0701	1.4500e-003	0.0716	0.0000	193.2243	193.2243	5.1600e-003	0.0000	193.3532
Total	**0.1496**	**1.3955**	**1.2305**	**5.8500e-003**	**0.3591**	**3.6500e-003**	**0.3627**	**0.0976**	**3.4400e-003**	**0.1010**	**0.0000**	**562.3504**	**562.3504**	**0.0332**	**0.0000**	**563.1803**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.9000e-004	2.6700e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.6786	0.6786	2.0000e-005	0.0000	0.6790
Total	**3.9000e-004**	**2.9000e-004**	**2.6700e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.6786**	**0.6786**	**2.0000e-005**	**0.0000**	**0.6790**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.9000e-004	2.6700e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.6786	0.6786	2.0000e-005	0.0000	0.6790
Total	**3.9000e-004**	**2.9000e-004**	**2.6700e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.6786**	**0.6786**	**2.0000e-005**	**0.0000**	**0.6790**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6536					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.6549**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0300e-003	9.4800e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.4066	2.4066	6.0000e-005	0.0000	2.4082
Total	**1.3800e-003**	**1.0300e-003**	**9.4800e-003**	**3.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3100e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.4066**	**2.4066**	**6.0000e-005**	**0.0000**	**2.4082**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6536					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.6549**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0300e-003	9.4800e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.4066	2.4066	6.0000e-005	0.0000	2.4082
Total	**1.3800e-003**	**1.0300e-003**	**9.4800e-003**	**3.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3100e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.4066**	**2.4066**	**6.0000e-005**	**0.0000**	**2.4082**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	3.6600e-003	5.4300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.7660	0.7660	4.0000e-005	0.0000	0.7671
Total	**0.2807**	**3.6600e-003**	**5.4300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**4.0000e-005**	**0.0000**	**0.7671**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.0000e-004	3.7300e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.9914	0.9914	2.0000e-005	0.0000	0.9921
Total	**5.5000e-004**	**4.0000e-004**	**3.7300e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**0.9914**	**0.9914**	**2.0000e-005**	**0.0000**	**0.9921**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	3.6600e-003	5.4300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.7660	0.7660	4.0000e-005	0.0000	0.7671
Total	**0.2807**	**3.6600e-003**	**5.4300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**4.0000e-005**	**0.0000**	**0.7671**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.0000e-004	3.7300e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.9914	0.9914	2.0000e-005	0.0000	0.9921
Total	**5.5000e-004**	**4.0000e-004**	**3.7300e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**0.9914**	**0.9914**	**2.0000e-005**	**0.0000**	**0.9921**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Unmitigated	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	165.0296	165.0296	9.5800e-003	1.9800e-003	165.8596
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	165.0296	165.0296	9.5800e-003	1.9800e-003	165.8596
NaturalGas Mitigated	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
NaturalGas Unmitigated	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.61586e+006	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
Total		**0.0141**	**0.1205**	**0.0513**	**7.7000e-004**		**9.7500e-003**	**9.7500e-003**		**9.7500e-003**	**9.7500e-003**	**0.0000**	**139.5922**	**139.5922**	**2.6800e-003**	**2.5600e-003**	**140.4217**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.61586e+006	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
Total		**0.0141**	**0.1205**	**0.0513**	**7.7000e-004**		**9.7500e-003**	**9.7500e-003**		**9.7500e-003**	**9.7500e-003**	**0.0000**	**139.5922**	**139.5922**	**2.6800e-003**	**2.5600e-003**	**140.4217**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	728151	165.0296	9.5800e-003	1.9800e-003	165.8596
Total		**165.0296**	**9.5800e-003**	**1.9800e-003**	**165.8596**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	728151	165.0296	9.5800e-003	1.9800e-003	165.8596
Total		**165.0296**	**9.5800e-003**	**1.9800e-003**	**165.8596**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Unmitigated	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0201	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Total	**0.9370**	**7.7000e-003**	**0.6682**	**4.0000e-005**		**3.7000e-003**	**3.7000e-003**		**3.7000e-003**	**3.7000e-003**	**0.0000**	**1.0919**	**1.0919**	**1.0500e-003**	**0.0000**	**1.1181**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0201	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Total	**0.9370**	**7.7000e-003**	**0.6682**	**4.0000e-005**		**3.7000e-003**	**3.7000e-003**		**3.7000e-003**	**3.7000e-003**	**0.0000**	**1.0919**	**1.0919**	**1.0500e-003**	**0.0000**	**1.1181**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	17.8490	6.6500e-003	3.8000e-003	19.1489
Unmitigated	22.3113	8.3200e-003	4.7500e-003	23.9361

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 12.7489	10.1130	5.9000e-004	1.2000e-004	10.1639
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.86386 / 3.69678	12.1983	7.7300e-003	4.6300e-003	13.7722
Total		**22.3113**	**8.3200e-003**	**4.7500e-003**	**23.9361**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.1991	8.0904	4.7000e-004	1.0000e-004	8.1311
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.69109 / 2.95743	9.7587	6.1800e-003	3.7100e-003	11.0178
Total		**17.8490**	**6.6500e-003**	**3.8100e-003**	**19.1489**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.4973	0.3222	0.0000	14.5517
Unmitigated	25.9891	1.2887	0.0000	58.2069

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.92	0.1911	9.4700e-003	0.0000	0.4279
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	124.23	25.7980	1.2792	0.0000	57.7790
Total		**25.9891**	**1.2887**	**0.0000**	**58.2069**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.23	0.0478	2.3700e-003	0.0000	0.1070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	31.0575	6.4495	0.3198	0.0000	14.4448
Total		**6.4973**	**0.3222**	**0.0000**	**14.5517**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:41 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4345	47.0729	22.8935	0.0416	18.2393	2.3963	20.6356	9.9754	2.2048	12.1802	0.0000	4,148.2549	4,148.2549	1.2236	0.0000	4,178.8458
2020	4.5468	51.7040	32.7719	0.0832	18.4352	2.2017	20.6369	10.0235	2.0257	12.0492	0.0000	8,466.8368	8,466.8368	1.9761	0.0000	8,491.0983
2021	93.8094	32.8332	29.3656	0.0820	3.2459	1.0162	4.2621	0.8804	0.9558	1.8362	0.0000	8,363.6268	8,363.6268	0.9554	0.0000	8,387.5117
2022	93.7799	30.1926	28.0626	0.0809	3.2459	0.8609	4.1068	0.8804	0.8103	1.6907	0.0000	8,259.4772	8,259.4772	0.9479	0.0000	8,283.1755
2023	93.7534	26.5596	26.8917	0.0795	3.2459	0.7317	3.9776	0.8804	0.6885	1.5689	0.0000	8,119.9063	8,119.9063	0.9269	0.0000	8,143.0773
2024	93.7303	1.3367	3.0443	6.7100e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	653.8405	653.8405	0.0250	0.0000	654.4646
Maximum	**93.8094**	**51.7040**	**32.7719**	**0.0832**	**18.4352**	**2.3963**	**20.6369**	**10.0235**	**2.2048**	**12.1802**	**0.0000**	**8,466.8368**	**8,466.8368**	**1.9761**	**0.0000**	**8,491.0983**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4345	47.0729	22.8935	0.0416	7.2112	2.3963	9.6075	3.9166	2.2048	6.1214	0.0000	4,148.2549	4,148.2549	1.2236	0.0000	4,178.8458
2020	4.5468	51.7040	32.7719	0.0832	7.4072	2.2017	9.6089	3.9647	2.0257	5.9904	0.0000	8,466.8368	8,466.8368	1.9761	0.0000	8,491.0983
2021	93.8094	32.8332	29.3656	0.0820	3.2459	1.0162	4.2621	0.8804	0.9558	1.8362	0.0000	8,363.6268	8,363.6268	0.9554	0.0000	8,387.5117
2022	93.7799	30.1926	28.0626	0.0809	3.2459	0.8609	4.1068	0.8804	0.8103	1.6907	0.0000	8,259.4772	8,259.4772	0.9479	0.0000	8,283.1755
2023	93.7534	26.5596	26.8917	0.0795	3.2459	0.7317	3.9776	0.8804	0.6885	1.5689	0.0000	8,119.9063	8,119.9063	0.9269	0.0000	8,143.0773
2024	93.7303	1.3367	3.0443	6.7100e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	653.8405	653.8405	0.0250	0.0000	654.4646
Maximum	**93.8094**	**51.7040**	**32.7719**	**0.0832**	**7.4072**	**2.3963**	**9.6089**	**3.9647**	**2.2048**	**6.1214**	**0.0000**	**8,466.8368**	**8,466.8368**	**1.9761**	**0.0000**	**8,491.0983**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.04**	**0.00**	**40.72**	**53.22**	**0.00**	**41.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Total	**6.5907**	**5.0025**	**19.5662**	**0.0401**	**3.4887**	**0.1245**	**3.6132**	**0.9348**	**0.1225**	**1.0573**	**0.0000**	**4,464.6655**	**4,464.6655**	**0.1960**	**0.0155**	**4,474.1714**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Total	**6.5907**	**5.0025**	**19.5662**	**0.0401**	**3.4887**	**0.1245**	**3.6132**	**0.9348**	**0.1225**	**1.0573**	**0.0000**	**4,464.6655**	**4,464.6655**	**0.1960**	**0.0155**	**4,474.1714**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0787**	**2.3904**	**20.4691**	**9.9326**	**2.1991**	**12.1317**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0377	1.4506	0.3539	2.4900e-003	0.0469	5.2000e-003	0.0521	0.0127	4.9700e-003	0.0177		276.2360	276.2360	0.0280		276.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.0995**	**1.5002**	**0.8305**	**3.5500e-003**	**0.1606**	**5.9500e-003**	**0.1665**	**0.0429**	**5.6600e-003**	**0.0485**		**381.8020**	**381.8020**	**0.0320**		**382.6013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0507**	**2.3904**	**9.4411**	**3.8737**	**2.1991**	**6.0728**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0377	1.4506	0.3539	2.4900e-003	0.0469	5.2000e-003	0.0521	0.0127	4.9700e-003	0.0177		276.2360	276.2360	0.0280		276.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.0995**	**1.5002**	**0.8305**	**3.5500e-003**	**0.1606**	**5.9500e-003**	**0.1665**	**0.0429**	**5.6600e-003**	**0.0485**		**381.8020**	**381.8020**	**0.0320**		**382.6013**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0787**	**2.1974**	**20.2761**	**9.9326**	**2.0216**	**11.9542**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	1.3669	0.3234	2.4700e-003	0.2429	3.5500e-003	0.2464	0.0608	3.4000e-003	0.0642		275.2612	275.2612	0.0280		275.9617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.0883**	**1.4105**	**0.7452**	**3.5000e-003**	**0.3565**	**4.2700e-003**	**0.3608**	**0.0910**	**4.0700e-003**	**0.0950**		**377.5785**	**377.5785**	**0.0314**		**378.3645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0507**	**2.1974**	**9.2481**	**3.8737**	**2.0216**	**5.8953**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	1.3669	0.3234	2.4700e-003	0.2429	3.5500e-003	0.2464	0.0608	3.4000e-003	0.0642		275.2612	275.2612	0.0280		275.9617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.0883**	**1.4105**	**0.7452**	**3.5000e-003**	**0.3565**	**4.2700e-003**	**0.3608**	**0.0910**	**4.0700e-003**	**0.0950**		**377.5785**	**377.5785**	**0.0314**		**378.3645**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6866	0.0000	8.6866	3.5985	0.0000	3.5985			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6866**	**2.1739**	**10.8605**	**3.5985**	**2.0000**	**5.5985**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.4580	0.3450	2.6400e-003	0.0446	3.7900e-003	0.0484	0.0122	3.6300e-003	0.0159		293.6120	293.6120	0.0299		294.3591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.0967**	**1.5065**	**0.8136**	**3.7800e-003**	**0.1710**	**4.5900e-003**	**0.1755**	**0.0457**	**4.3700e-003**	**0.0501**		**407.2978**	**407.2978**	**0.0337**		**408.1401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3878	0.0000	3.3878	1.4034	0.0000	1.4034			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3878**	**2.1739**	**5.5617**	**1.4034**	**2.0000**	**3.4034**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.4580	0.3450	2.6400e-003	0.0446	3.7900e-003	0.0484	0.0122	3.6300e-003	0.0159		293.6120	293.6120	0.0299		294.3591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.0967**	**1.5065**	**0.8136**	**3.7800e-003**	**0.1710**	**4.5900e-003**	**0.1755**	**0.0457**	**4.3700e-003**	**0.0501**		**407.2978**	**407.2978**	**0.0337**		**408.1401**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5683	15.8896	5.3486	0.0347	0.8587	0.0855	0.9442	0.2471	0.0818	0.3289		3,765.1119	3,765.1119	0.2757		3,772.0043
Worker	1.1817	0.9160	8.8576	0.0216	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,148.6619	2,148.6619	0.0719		2,150.4595
Total	**1.7500**	**16.8056**	**14.2063**	**0.0562**	**3.2459**	**0.1007**	**3.3467**	**0.8804**	**0.0958**	**0.9762**		**5,913.7738**	**5,913.7738**	**0.3476**		**5,922.4638**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5683	15.8896	5.3486	0.0347	0.8587	0.0855	0.9442	0.2471	0.0818	0.3289		3,765.1119	3,765.1119	0.2757		3,772.0043
Worker	1.1817	0.9160	8.8576	0.0216	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,148.6619	2,148.6619	0.0719		2,150.4595
Total	**1.7500**	**16.8056**	**14.2063**	**0.0562**	**3.2459**	**0.1007**	**3.3467**	**0.8804**	**0.0958**	**0.9762**		**5,913.7738**	**5,913.7738**	**0.3476**		**5,922.4638**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2202	0.1640	1.6139	4.1900e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		417.3342	417.3342	0.0128		417.6549
Total	**0.2202**	**0.1640**	**1.6139**	**4.1900e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**417.3342**	**417.3342**	**0.0128**		**417.6549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2202	0.1640	1.6139	4.1900e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		417.3342	417.3342	0.0128		417.6549
Total	**0.2202**	**0.1640**	**1.6139**	**4.1900e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**417.3342**	**417.3342**	**0.0128**		**417.6549**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2050	0.1466	1.4705	4.0400e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		402.4467	402.4467	0.0114		402.7323
Total	**0.2050**	**0.1466**	**1.4705**	**4.0400e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**402.4467**	**402.4467**	**0.0114**		**402.7323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2050	0.1466	1.4705	4.0400e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		402.4467	402.4467	0.0114		402.7323
Total	**0.2050**	**0.1466**	**1.4705**	**4.0400e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**402.4467**	**402.4467**	**0.0114**		**402.7323**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3357	11.5216	3.9648	0.0332	0.8586	0.0181	0.8767	0.2470	0.0173	0.2643		3,637.8730	3,637.8730	0.2683		3,644.5801
Worker	0.9518	0.6531	6.6829	0.0193	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,926.8234	1,926.8234	0.0507		1,928.0911
Total	**1.2875**	**12.1747**	**10.6477**	**0.0525**	**3.2459**	**0.0320**	**3.2779**	**0.8804**	**0.0301**	**0.9105**		**5,564.6964**	**5,564.6964**	**0.3190**		**5,572.6712**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3357	11.5216	3.9648	0.0332	0.8586	0.0181	0.8767	0.2470	0.0173	0.2643		3,637.8730	3,637.8730	0.2683		3,644.5801
Worker	0.9518	0.6531	6.6829	0.0193	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,926.8234	1,926.8234	0.0507		1,928.0911
Total	**1.2875**	**12.1747**	**10.6477**	**0.0525**	**3.2459**	**0.0320**	**3.2779**	**0.8804**	**0.0301**	**0.9105**		**5,564.6964**	**5,564.6964**	**0.3190**		**5,572.6712**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0378	0.0259	0.2652	7.7000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		76.4613	76.4613	2.0100e-003		76.5116
Total	**0.0378**	**0.0259**	**0.2652**	**7.7000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**76.4613**	**76.4613**	**2.0100e-003**		**76.5116**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0378	0.0259	0.2652	7.7000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		76.4613	76.4613	2.0100e-003		76.5116
Total	**0.0378**	**0.0259**	**0.2652**	**7.7000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**76.4613**	**76.4613**	**2.0100e-003**		**76.5116**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1914	0.1313	1.3437	3.8900e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		387.4037	387.4037	0.0102		387.6585
Total	**0.1914**	**0.1313**	**1.3437**	**3.8900e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**387.4037**	**387.4037**	**0.0102**		**387.6585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1914	0.1313	1.3437	3.8900e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		387.4037	387.4037	0.0102		387.6585
Total	**0.1914**	**0.1313**	**1.3437**	**3.8900e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**387.4037**	**387.4037**	**0.0102**		**387.6585**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1792	0.1179	1.2342	3.7400e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		372.3925	372.3925	9.1100e-003		372.6203
Total	**0.1792**	**0.1179**	**1.2342**	**3.7400e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**372.3925**	**372.3925**	**9.1100e-003**		**372.6203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1792	0.1179	1.2342	3.7400e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		372.3925	372.3925	9.1100e-003		372.6203
Total	**0.1792**	**0.1179**	**1.2342**	**3.7400e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**372.3925**	**372.3925**	**9.1100e-003**		**372.6203**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Unmitigated	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
NaturalGas Unmitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7166.73	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.16673	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Unmitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:44 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4450	47.0606	22.9639	0.0414	18.2393	2.3967	20.6360	9.9754	2.2052	12.1806	0.0000	4,134.8891	4,134.8891	1.2253	0.0000	4,165.5222
2020	4.5570	51.6905	32.8367	0.0819	18.4352	2.2020	20.6372	10.0235	2.0260	12.0495	0.0000	8,329.3384	8,329.3384	1.9778	0.0000	8,353.9279
2021	93.8378	32.8929	30.1389	0.0808	3.2459	1.0184	4.2643	0.8804	0.9579	1.8383	0.0000	8,227.4903	8,227.4903	0.9683	0.0000	8,251.6976
2022	93.8067	30.2324	28.7576	0.0797	3.2459	0.8629	4.1088	0.8804	0.8122	1.6926	0.0000	8,124.5939	8,124.5939	0.9610	0.0000	8,148.6178
2023	93.7789	26.5924	27.4641	0.0783	3.2459	0.7326	3.9785	0.8804	0.6894	1.5697	0.0000	7,987.2657	7,987.2657	0.9381	0.0000	8,010.7189
2024	93.7547	1.3536	3.0799	6.6200e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	645.2408	645.2408	0.0249	0.0000	645.8635
Maximum	**93.8378**	**51.6905**	**32.8367**	**0.0819**	**18.4352**	**2.3967**	**20.6372**	**10.0235**	**2.2052**	**12.1806**	**0.0000**	**8,329.3384**	**8,329.3384**	**1.9778**	**0.0000**	**8,353.9279**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4450	47.0606	22.9639	0.0414	7.2112	2.3967	9.6079	3.9166	2.2052	6.1217	0.0000	4,134.8891	4,134.8891	1.2253	0.0000	4,165.5222
2020	4.5570	51.6905	32.8367	0.0819	7.4072	2.2020	9.6092	3.9647	2.0260	5.9906	0.0000	8,329.3384	8,329.3384	1.9778	0.0000	8,353.9278
2021	93.8378	32.8929	30.1389	0.0808	3.2459	1.0184	4.2643	0.8804	0.9579	1.8383	0.0000	8,227.4903	8,227.4903	0.9683	0.0000	8,251.6976
2022	93.8067	30.2324	28.7576	0.0797	3.2459	0.8629	4.1088	0.8804	0.8122	1.6926	0.0000	8,124.5939	8,124.5939	0.9610	0.0000	8,148.6178
2023	93.7789	26.5924	27.4641	0.0783	3.2459	0.7326	3.9785	0.8804	0.6894	1.5697	0.0000	7,987.2657	7,987.2657	0.9381	0.0000	8,010.7188
2024	93.7547	1.3536	3.0799	6.6200e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	645.2408	645.2408	0.0249	0.0000	645.8635
Maximum	**93.8378**	**51.6905**	**32.8367**	**0.0819**	**7.4072**	**2.3967**	**9.6092**	**3.9647**	**2.2052**	**6.1217**	**0.0000**	**8,329.3384**	**8,329.3384**	**1.9778**	**0.0000**	**8,353.9278**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.04**	**0.00**	**40.72**	**53.22**	**0.00**	**41.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Total	**6.5619**	**5.1414**	**20.4028**	**0.0393**	**3.4887**	**0.1247**	**3.6134**	**0.9348**	**0.1227**	**1.0575**	**0.0000**	**4,383.6950**	**4,383.6950**	**0.2016**	**0.0155**	**4,393.3408**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Total	**6.5619**	**5.1414**	**20.4028**	**0.0393**	**3.4887**	**0.1247**	**3.6134**	**0.9348**	**0.1227**	**1.0575**	**0.0000**	**4,383.6950**	**4,383.6950**	**0.2016**	**0.0155**	**4,393.3408**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0787**	**2.3904**	**20.4691**	**9.9326**	**2.1991**	**12.1317**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	1.4311	0.4039	2.3900e-003	0.0469	5.5900e-003	0.0525	0.0127	5.3500e-003	0.0181		265.3094	265.3094	0.0297		266.0506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1100**	**1.4879**	**0.9009**	**3.4300e-003**	**0.1606**	**6.3400e-003**	**0.1669**	**0.0429**	**6.0400e-003**	**0.0489**		**368.4362**	**368.4362**	**0.0337**		**369.2777**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0507**	**2.3904**	**9.4411**	**3.8737**	**2.1991**	**6.0728**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	1.4311	0.4039	2.3900e-003	0.0469	5.5900e-003	0.0525	0.0127	5.3500e-003	0.0181		265.3094	265.3094	0.0297		266.0506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1100**	**1.4879**	**0.9009**	**3.4300e-003**	**0.1606**	**6.3400e-003**	**0.1669**	**0.0429**	**6.0400e-003**	**0.0489**		**368.4362**	**368.4362**	**0.0337**		**369.2777**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0787**	**2.1974**	**20.2761**	**9.9326**	**2.0216**	**11.9542**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.3477	0.3672	2.3700e-003	0.2429	3.8400e-003	0.2467	0.0608	3.6700e-003	0.0645		264.0520	264.0520	0.0296		264.7918
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.0976**	**1.3976**	**0.8053**	**3.3700e-003**	**0.3565**	**4.5600e-003**	**0.3611**	**0.0910**	**4.3400e-003**	**0.0953**		**364.0030**	**364.0030**	**0.0330**		**364.8287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0507**	**2.1974**	**9.2481**	**3.8737**	**2.0216**	**5.8953**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.3477	0.3672	2.3700e-003	0.2429	3.8400e-003	0.2467	0.0608	3.6700e-003	0.0645		264.0520	264.0520	0.0296		264.7918
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.0976**	**1.3976**	**0.8053**	**3.3700e-003**	**0.3565**	**4.5600e-003**	**0.3611**	**0.0910**	**4.3400e-003**	**0.0953**		**364.0030**	**364.0030**	**0.0330**		**364.8287**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6866	0.0000	8.6866	3.5985	0.0000	3.5985			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6866**	**2.1739**	**10.8605**	**3.5985**	**2.0000**	**5.5985**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0364	1.4375	0.3917	2.5300e-003	0.0446	4.1000e-003	0.0487	0.0122	3.9200e-003	0.0162		281.6555	281.6555	0.0316		282.4446
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1069**	**1.4930**	**0.8784**	**3.6500e-003**	**0.1710**	**4.9000e-003**	**0.1759**	**0.0457**	**4.6600e-003**	**0.0504**		**392.7121**	**392.7121**	**0.0354**		**393.5967**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3878	0.0000	3.3878	1.4034	0.0000	1.4034			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3878**	**2.1739**	**5.5617**	**1.4034**	**2.0000**	**3.4034**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0364	1.4375	0.3917	2.5300e-003	0.0446	4.1000e-003	0.0487	0.0122	3.9200e-003	0.0162		281.6555	281.6555	0.0316		282.4446
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1069**	**1.4930**	**0.8784**	**3.6500e-003**	**0.1710**	**4.9000e-003**	**0.1759**	**0.0457**	**4.6600e-003**	**0.0504**		**392.7121**	**392.7121**	**0.0354**		**393.5967**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5993	15.8474	5.8747	0.0339	0.8587	0.0880	0.9467	0.2471	0.0842	0.3312		3,677.3061	3,677.3061	0.2885		3,684.5191
Worker	1.3327	1.0479	9.2000	0.0211	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,098.9692	2,098.9692	0.0722		2,100.7742
Total	**1.9320**	**16.8953**	**15.0748**	**0.0550**	**3.2459**	**0.1032**	**3.3491**	**0.8804**	**0.0982**	**0.9786**		**5,776.2753**	**5,776.2753**	**0.3607**		**5,785.2934**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5993	15.8474	5.8747	0.0339	0.8587	0.0880	0.9467	0.2471	0.0842	0.3312		3,677.3061	3,677.3061	0.2885		3,684.5191
Worker	1.3327	1.0479	9.2000	0.0211	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,098.9692	2,098.9692	0.0722		2,100.7742
Total	**1.9320**	**16.8953**	**15.0748**	**0.0550**	**3.2459**	**0.1032**	**3.3491**	**0.8804**	**0.0982**	**0.9786**		**5,776.2753**	**5,776.2753**	**0.3607**		**5,785.2934**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2485	0.1876	1.6726	4.1000e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		407.6835	407.6835	0.0129		408.0049
Total	**0.2485**	**0.1876**	**1.6726**	**4.1000e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**407.6835**	**407.6835**	**0.0129**		**408.0049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2485	0.1876	1.6726	4.1000e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		407.6835	407.6835	0.0129		408.0049
Total	**0.2485**	**0.1876**	**1.6726**	**4.1000e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**407.6835**	**407.6835**	**0.0129**		**408.0049**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2318	0.1677	1.5201	3.9500e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		393.1440	393.1440	0.0114		393.4295
Total	**0.2318**	**0.1677**	**1.5201**	**3.9500e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**393.1440**	**393.1440**	**0.0114**		**393.4295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2318	0.1677	1.5201	3.9500e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		393.1440	393.1440	0.0114		393.4295
Total	**0.2318**	**0.1677**	**1.5201**	**3.9500e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**393.1440**	**393.1440**	**0.0114**		**393.4295**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3564	11.4606	4.3296	0.0324	0.8586	0.0189	0.8776	0.2470	0.0181	0.2652		3,549.7498	3,549.7498	0.2797		3,556.7430
Worker	1.0785	0.7469	6.8905	0.0189	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,882.3060	1,882.3060	0.0506		1,883.5698
Total	**1.4349**	**12.2075**	**11.2201**	**0.0513**	**3.2459**	**0.0329**	**3.2787**	**0.8804**	**0.0309**	**0.9113**		**5,432.0558**	**5,432.0558**	**0.3303**		**5,440.3128**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3564	11.4606	4.3296	0.0324	0.8586	0.0189	0.8776	0.2470	0.0181	0.2652		3,549.7498	3,549.7498	0.2797		3,556.7430
Worker	1.0785	0.7469	6.8905	0.0189	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,882.3060	1,882.3060	0.0506		1,883.5698
Total	**1.4349**	**12.2075**	**11.2201**	**0.0513**	**3.2459**	**0.0329**	**3.2787**	**0.8804**	**0.0309**	**0.9113**		**5,432.0558**	**5,432.0558**	**0.3303**		**5,440.3128**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0296	0.2734	7.5000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		74.6947	74.6947	2.0100e-003		74.7448
Total	**0.0428**	**0.0296**	**0.2734**	**7.5000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**74.6947**	**74.6947**	**2.0100e-003**		**74.7448**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0296	0.2734	7.5000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		74.6947	74.6947	2.0100e-003		74.7448
Total	**0.0428**	**0.0296**	**0.2734**	**7.5000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**74.6947**	**74.6947**	**2.0100e-003**		**74.7448**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2169	0.1502	1.3854	3.8000e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		378.4531	378.4531	0.0102		378.7072
Total	**0.2169**	**0.1502**	**1.3854**	**3.8000e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**378.4531**	**378.4531**	**0.0102**		**378.7072**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2169	0.1502	1.3854	3.8000e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		378.4531	378.4531	0.0102		378.7072
Total	**0.2169**	**0.1502**	**1.3854**	**3.8000e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**378.4531**	**378.4531**	**0.0102**		**378.7072**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2036	0.1348	1.2697	3.6500e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		363.7928	363.7928	9.0600e-003		364.0193
Total	**0.2036**	**0.1348**	**1.2697**	**3.6500e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**363.7928**	**363.7928**	**9.0600e-003**		**364.0193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2036	0.1348	1.2697	3.6500e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		363.7928	363.7928	9.0600e-003		364.0193
Total	**0.2036**	**0.1348**	**1.2697**	**3.6500e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**363.7928**	**363.7928**	**9.0600e-003**		**364.0193**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Unmitigated	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
NaturalGas Unmitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7166.73	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.16673	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Unmitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

Appendix C

Biological Resources Reports

Biological Resources Assessment Report for The Neighborhoods of Willow Creek & Hidden Canyon

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DECEMBER 2016
REVISED FEBRUARY 2019

TABLE OF CONTENTS

Section **Page No.**

ACRONYM LIST ..... **V**

1 INTRODUCTION **1**
1.1 Site Location 1
1.2 Project Description 1
1.3 Biological Setting 2

2 REGULATORY SETTING **7**
2.1 Endangered Species Acts 7
2.1.1 California Endangered Species Act 7
2.1.2 Federal Endangered Species Act 8
2.2 Fish and Game Code 9
2.3 Migratory Bird Treaty Act 9
2.4 State Take Authorizations for Listed or Other Regulated Species 10
2.5 Federal Take Authorizations for Listed or Other Regulated Species 10
2.6 Jurisdictional Waters of the U.S./State, Including Wetlands 10
2.6.1 U.S. Army Corps of Engineers 11
2.6.2 California Department of Fish and Game 13
2.6.3 California Regional Water Quality Control Board 13
2.6.4 County of Santa Barbara 13
2.7 California Environmental Quality Act 13
2.8 Local Laws, Ordinances, Regulations, and Standards 14
2.8.1 Santa Barbara County *Environmental Thresholds and Guidelines Manual* 14
2.8.2 Orcutt Community Plan 15
2.8.3 Conservation Element – Oak Tree Protection in the Inland Rural Areas of Santa Barbara County 16

3 METHODS **17**
3.1 Literature Review 17
3.2 Vegetation Mapping 18
3.3 ~~Purple Needle Grass~~ Native Grassland Assessment 18
3.4 Focused Floristic Survey 19
3.5 California Tiger Salamander 23
3.6 California Red-Legged Frog 24
3.7 Nesting Raptors 24

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

3.8 Hydrologic Feature Assessment 25
3.9 Tree Inventory 25

4 RESULTS 27
4.1 Vegetation Communities and Wildlife Habitats 28
4.1.1 Herbaceous Alliances and Stands 29
4.1.2 Shrubland Alliances and Stands 34
4.1.3 Woodland, Windbreaks, and Tree Clusters 37
4.1.4 Other Land Cover Types 39
4.2 ~~Purple Needle Grass~~ Native Grassland Assessment 40
4.3 Protected Trees 47
4.4 Hydrologic Feature Assessment 51
4.5 Special-Status Plant Species 52
4.5.1 Black-flowered figwort 61
4.5.2 Blochman's dudleya 61
4.5.3 Kellogg's horkelia 61
4.5.4 Straight-awned spineflower 62
4.6 Special-Status Wildlife Species 62
4.6.1 California Tiger Salamander 69
4.6.2 California Red-Legged Frog 70
4.6.3 Monarch Butterfly 71
4.6.4 Other Special-Status Wildlife Species 72

5 IMPACT ANALYSIS AND MITIGATION MEASURES 77
5.1 Thresholds of Significance 77
5.1.1 California Environmental Quality Act (CEQA) 77
5.1.2 County of Santa Barbara 78
5.2 Vegetation Communities 79
5.2.1 Native Grasslands 80
5.2.2 Wetland and Riparian Vegetation 82
5.2.3 Coastal Scrub 86
5.3 Protected Trees 87
5.4 Special-Status Plant Species 91
5.5 Special-Status Wildlife Species 91
5.5.1 California Tiger Salamander 91
5.5.2 California Red-legged Frog 93

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

5.5.3 Monarch Butterfly Roosting 94
5.5.4 Other Special-Status Wildlife 94
5.5 Nesting Birds 96
5.6 Jurisdictional Waters 97
5.7 Fuel Management Activities 98

6 REFERENCES 101

LIST OF FIGURES

1 Vicinity and Regional Map 3
2 Site Plan 5
3 Biological Survey Area 21
4 Vegetation Communities and Land Cover Types 31
5 ~~Purple Needle Grass~~ Native Grassland Assessment 45
6 Tree Inventory Area 49
7 Impacts Analysis 75

LIST OF TABLES

1 Biological Survey Schedule 27
2 Summary of Existing Vegetation Communities and Wildlife Habitats and Their Acreage in Key Site 21 and the Sewer Line Easement 28
3 2016 ~~Purple Needle Grass~~ Native Grassland Assessment Results 41
4 2016 Purple Needle Grass Grassland Polygons 43
5 Summary of Proposed Tree Removals ~~for The Neighborhoods of Willow Creek & Hidden Canyon Project~~ 47
6 Summary of Protected Proposed Tree Removals for The Neighborhoods of Willow Creek & Hidden Canyon Project 48
7 Summary of Protected Proposed Tree Impacts to Canopy and Root Zone ~~for The Neighborhoods of Willow Creek & Hidden Canyon Project~~ 51
8 Special-Status Plant Species Potentially Occurring in the Biological Survey Area 53
9 Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area 63
10 Summary of Impacts to Existing Vegetation Communities and Their Acreage in Key Site 21and the ~~Project Site~~ Sewer Line Easement 79

TABLE OF CONTENTS (CONTINUED)

Page No.

APPENDICES

A ~~Purple Needle Grass~~ Native Grassland Assessment Data Sheets
B Photographic Documentation
C Conceptual Landscape Design
D PleinAire Design Group Tree Survey
E Dudek Tree Inventory
F Cumulative List of Plant Species
G Cumulative List of Wildlife Species
H 2005 VJS Biological Consulting California Tiger Salamander
I Soil Descriptions
J Draft Open Space Management Plan

ACRONYMS LIST

AMSL	Above mean sea level
AOU	American Ornithologists' Union
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
SSC	California Species of Concern
CWA	Clean Water Act
EPA	Environmental Protection Agency
ESA	Federal Endangered Species Act
ITP	Incidental take permit
MBTA	Migratory Bird Treaty Act
MCV2	Manual of California Vegetation, 2nd ed.
NCL	Natural Communities List
RWQCB	Regional Water Quality Control Board
TNW	Traditional navigable water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1 INTRODUCTION

Dudek has prepared this Biological Resources Assessment Report (report) for Orcutt Rancho, LLC (applicant) in support of The Neighborhoods of Willow Creek & Hidden Canyon (project) located west of the community of Orcutt in unincorporated Santa Barbara County. The purpose of this report is to provide the methods and results of the focused surveys that were conducted in the winter 2015-2016 and the spring and summer 2016, which included vegetation mapping, ~~purple needle~~ native grassland assessment, focused floristic surveys, California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*) habitat assessments, and raptor nesting surveys. This report includes an impact analysis based on survey results and federal, state, and local regulations. Mitigation measures are included for avoiding and minimizing impacts to biological resources. This report has been prepared to assist the County of Santa Barbara (County) California Environmental Quality Act (CEQA) review process. It is also intended to support environmental review by other applicable regulatory resource agencies, specifically the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB), as needed.

1.1 Site Location

The project site occurs within the 340.7-acre Orcutt Community Plan (OCP, County 2004) Key Site 21 area, located south of Highway 1 between Solomon Road to the east and Black Road to the west. The 92.2 acre project site is located approximately 0.5 mile west of the Solomon Road and Highway 1 intersection; and 0.6 mile southeast of Black Road. The project site is situated between and adjacent to the 129-acre Rancho Maria Golf Course, which is approximately 1 mile west of the community of Orcutt. The project site is bounded by privately owned land under agricultural cultivation to the east, ranchland and agricultural cultivation to the west, and ranchland to the south (*Figures 1 and 2*). The project site occurs within Assessor Parcel Number (APN) 113-250-015, -016, and -017.

1.2 Project Description

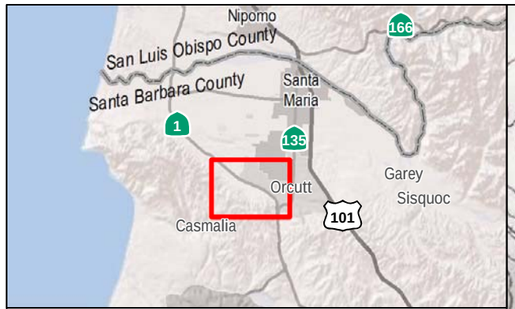
The project includes the development of approximately 143 residential units along with associated roads and other infrastructure within a portion Key Site 21 located in APNs 113-250-016 and -017, totaling approximately 92.2 acres. An existing entrance to the project site will be utilized within APN 113-250-015; however, the remainder of this parcel will be preserved as open space. The residential development is split into two areas; Willow Creek to the west and Hidden Canyon to the east (*Figure 2*). In addition to the on-site development, a sewer line easement will extend to the north from Key Site 21 to connect to the existing Laguna Sanitation line and road work will

take place on Highway 1 within the Caltrans right-of-way. Along with the residential development, the project includes improved recreational open space and preserved open space areas within the overall property boundary. The residential development and associated open space areas would be located largely outside of the existing Rancho Maria Golf Course footprint.

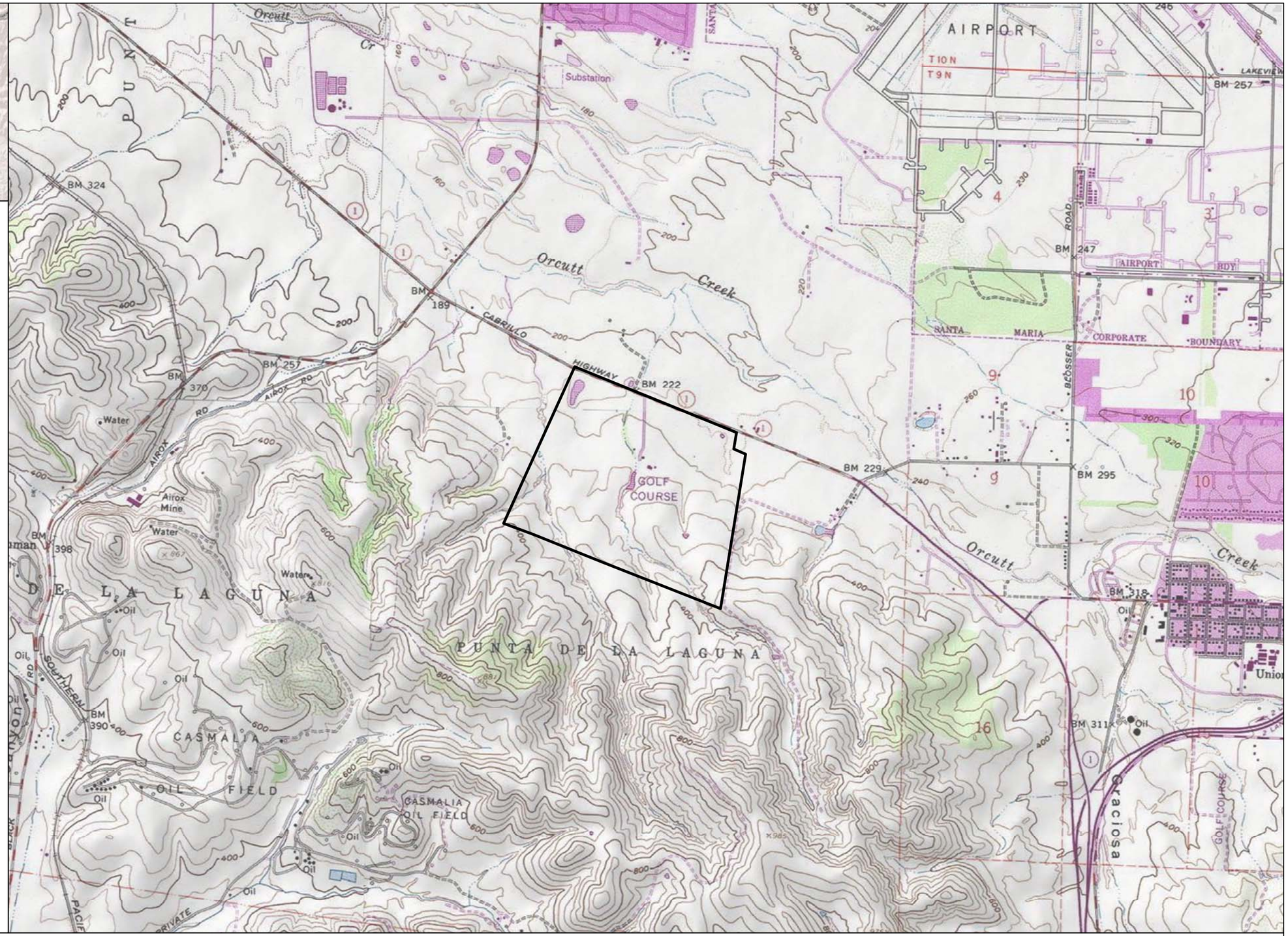
1.3 Biological Setting

The project site occurs at the base of the northern flanks of the east-west trending Casmalia Hills. The topography varies from flat to gentle south to north slopes that reach 420 feet above mean sea level (amsl) along the southern perimeter of the site and descend to 220 amsl in the northwest corner of the property. Three unnamed ephemeral waterways traverse the project site, directing water flow generally from south to north into Orcutt Creek and ultimately into the Santa Maria River and the Pacific Ocean.

A variety of native and non-native communities are found within and in the immediate area of the project site, including arroyo willow thickets, coast live oak woodland, California sagebrush scrub, coyote brush scrub, purple needle grass grassland, perennial rye grass grassland, cattail marshes, California annual grassland, and eucalyptus groves. Within the project site, California annual grasslands cover the majority of the landscape. Three canyons occurring in the central-eastern, south-central, and southwestern portions of the project site, and associated with the unnamed ephemeral waterways mentioned above, support the majority of the native riparian and chaparral vegetation found within the project site. Along with natural vegetation, habitat features such as seasonally ponded areas contain key ecosystem components that increase habitat value and complexity for a wide variety of wildlife and plant species. Among these potentially occurring on the project site are federally listed species, such as the California tiger salamander and California red-legged frog, and many other special-status plant and wildlife species.



Key Site 21



0 1,000 2,000 4,000 Feet

AERIAL SOURCE: NAIP 2014

DUDEK

FIGURE 1

Vicinity and Regional Map

Biological Resources Assessment Report for The Neighborhoods of Willow Creek and Hidden Canyon Project

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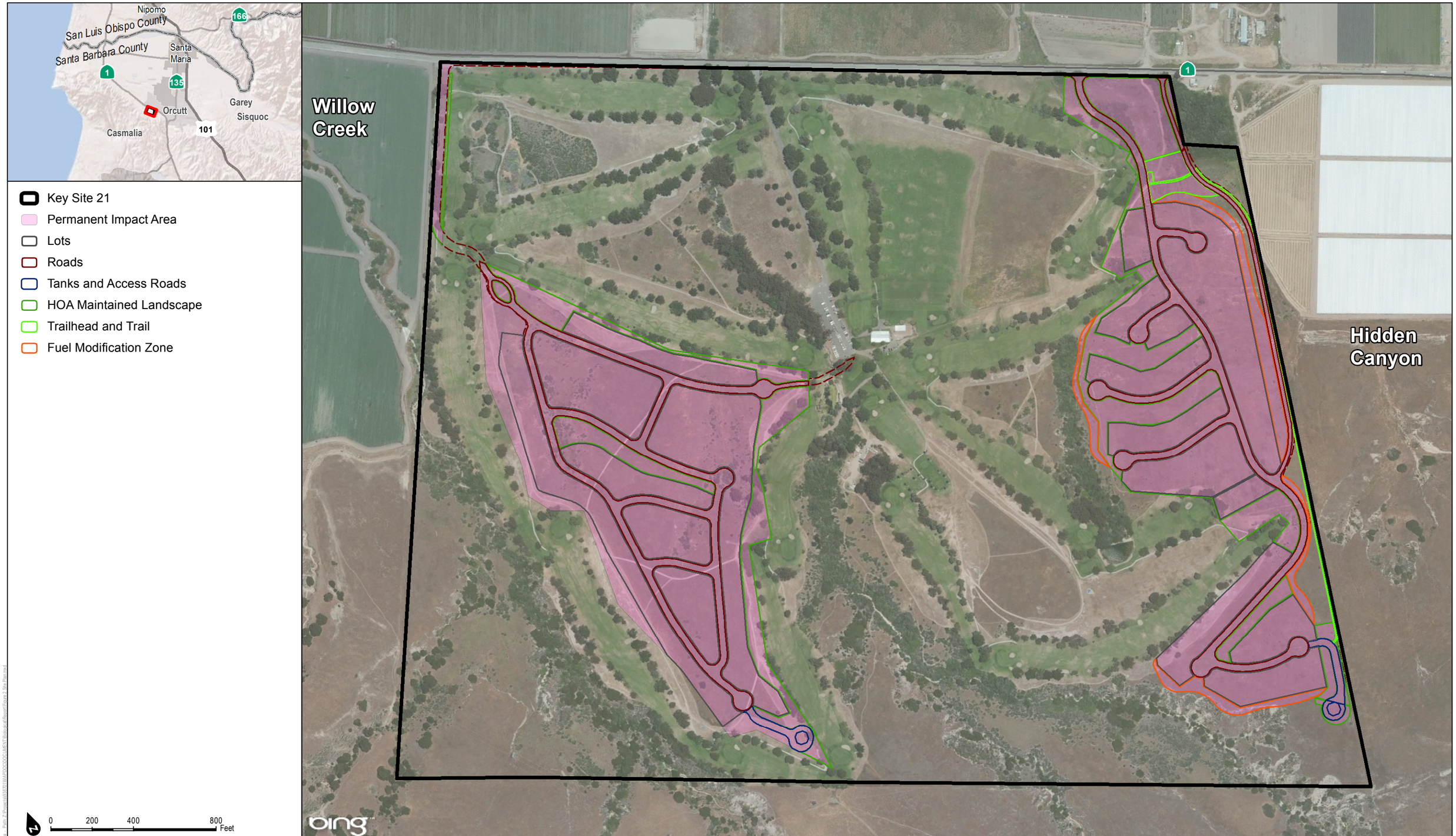

AERIAL SOURCE: NAIP 2014

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FIGURE 2
Site Plan

Biological Resources Assessment Report for The Neighborhoods of Willow Creek and Hidden Canyon Project

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2 REGULATORY SETTING

This section outlines the federal, state, and local regulations pertinent to the biological resources located on the project site. Some of the biological resources that may be affected by the project are regulated by resource agencies, which often overlap in jurisdiction. This section identifies and discusses the various programs regulating state and/or federally listed threatened or endangered plants and wildlife; and jurisdictional aquatic/hydrological features, such as drainages, streambeds, riparian habitat, and wetlands.

2.1 Endangered Species Acts

2.1.1 California Endangered Species Act

The CDFW administers the California Endangered Species Act (CESA) (Fish and Game Code, Sections 2050 et seq.), which prohibits the "take" of plant and animal species designated by the Fish and Game Commission as endangered or threatened in the state of California. Under CESA (Fish and Game Code, Section 86), take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA (Fish and Game Code, Section 2053) stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

The CESA (Fish and Game Code, Section 2062) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The CESA (Fish and Game Code, Section 2067) defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the Commission as rare on or before January 1, 1985, is a threatened species." Candidate species are defined (Fish and Game Code, Section 2068) as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list." The CESA does not list invertebrate species.

The CESA (Fish and Game Code, Sections 2080–2085) addresses the taking of threatened, endangered, or candidate species by stating, "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (Fish and Game Code, Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001)."

2.1.2 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the USFWS and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. The ESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under the provisions of Section 9(a)(1)(B) of the ESA (16 U.S.C. 1531 et seq.), it is unlawful to "take" any listed species. Take is defined in Section 3(19) of the ESA as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." A Final Rule published in the Federal Register on November 8, 1999 (64 FR 60727–60731), further defines "harm" as any act that kills or injures fish or wildlife, and emphasizes that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns (e.g., nesting or reproduction) of fish or wildlife. Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to or death of species, which therefore are defined as forms of take. These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species.

In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant or wildlife species, the property owner and agency are required to consult with USFWS. Take prohibitions in Section 9 of the ESA (16 U.S.C. 1531 et seq.) do not expressly encompass all plants. Property owners may take listed plant species without violating the take prohibition if:

- The proposed development is private and does not require federal authorization or permit
- There are no special federal regulations under Section 4(d) that prohibit take of the plant species
- There are no state laws prohibiting take of the plant species.

Section 9(a)(2) of the ESA (16 U.S.C. 1531 et seq.) addresses the protections afforded to listed plants. Unlike the CESA, the ESA provides protection to invertebrate species by listing them as threatened or endangered.

2.2 Fish and Game Code

According to Sections 3511 and 4700 of the Fish and Game Code, which regulate birds and mammals, respectively, a "fully protected" species may not be taken or possessed without a permit from the Fish and Game Commission.

Pursuant to Section 3503.5 of the Fish and Game Code, it is unlawful to take, possess, or destroy any birds of prey; or to take, possess, or destroy any nest or eggs of such birds. "Birds of prey" refer to species in the orders Falconiformes and Strigiformes. Active nests of all other birds (except house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and several other non-native species) are similarly protected under Sections 3503 and 3513 of the Fish and Game Code. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. This statute does not provide for the issuance of an incidental take permit.

2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was originally passed in 1918 and implements four bilateral treaties, or conventions, for the protection of a shared migratory bird resource (16 U.S.C. 703–712). The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others. Each of the treaties protects selected species of birds and provides for closed and open seasons for hunting game birds. The MBTA protects more than 800 species of birds, which are listed in the Code of Federal Regulations (50 CFR 10.13). Two species of eagles that are native to the United States, the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), were granted additional protection within the United States under the Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668–668d) to prevent the species from becoming extinct.

The MBTA prohibits the "take" of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so. Additionally, Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations. The Executive Order requires federal agencies to work with the USFWS to develop a memorandum of understanding. The USFWS reviews actions that might affect these species.

2.4 State Take Authorizations for Listed or Other Regulated Species

Sections 2081(b) and 2081(c) (Fish and Game Code) authorize take of endangered, threatened or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These criteria are reiterated in 14 CCR 783.4(a) and 783.4(b). These provisions also require CDFW to coordinate consultations with the USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, Section 2080.1 of the Fish and Game Code allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own based on its findings that the federal permit adequately protects the species and is consistent with state law.

A Section 2081(b) permit may not authorize the take of fully protected species and "specified birds" (Fish and Game Code, Sections 3505, 3511, 4700, 5050, 5515, and 5517). However, the CDFW may authorize take of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid take (see *Section 2.1.1* for the definition of take per CDFW).

2.5 Federal Take Authorizations for Listed or Other Regulated Species

Issuance of an incidental take permit (ITP) by the USFWS or NMFS is a federal action that is subject to Section 7 of the ESA (16 U.S.C. 1531 et seq.). Section 7 stipulates that any federal agency action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat (16 U.S.C. 1536(a)(2)). A biological opinion issued by the USFWS at the conclusion of the consultation may include authorization for incidental take of a listed species. The ESA prohibits the transportation of endangered plants across state lines or engaging in trade in any listed species, but it does not prohibit the destruction of endangered plants unless they occur on federal land or the plant species is protected by state law.

2.6 Jurisdictional Waters of the U.S./State, Including Wetlands

There are three primary agencies that regulate activities within inland streams, wetlands, and riparian areas in California: the USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under Sections 1600–1616 of the Fish and Game Code; and the California RWQCB regulates activities under the Porter-Cologne Water Quality Control Act and Section 401 of the CWA. The following discussion

provides information on each agency's regulatory program. In addition, Section IV, Appendix G (Environmental Checklist Form), of the *California Environmental Quality Act (CEQA) Statutes and Guidelines* (AEP 2008) requires an evaluation of impacts to "federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means."

2.6.1 U.S. Army Corps of Engineers

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredged and/or fill material into "waters of the United States." The term "waters of the United States" (waters) is defined in the Definition of Waters of the United States in the USACE regulations (33 CFR 328.3(a)) as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section.

The term "wetlands" (a subset of waters) is defined in 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark, which is defined in 33 CFR 328.3(e) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

On June 5, 2007, the USACE and U.S. Environmental Protection Agency (EPA) released guidance ("USACE/EPA Guidance") on the geographic extent of jurisdiction under the federal CWA, based on the U.S. Supreme Court's interpretation of the CWA in *Rapanos v. United States* and *Carabell v. Army Corps of Engineers*, 126 S. Ct. 2208 (U.S. EPA 2007). The USACE/U.S. EPA Guidance states that the USACE will regulate traditional navigable waters (TNW), adjacent wetlands (directly abutting TNWs), and relatively permanent waters tributary to TNWs and adjacent wetlands. Non-navigable tributaries that are neither relatively permanent nor wetlands adjacent to such tributaries will be assessed on a case-by-case basis to determine whether they have a "significant nexus" to a TNW. A significant nexus occurs when waters, including adjacent wetlands, affect the chemical, physical, or biological integrity of TNWs. Factors considered during the significant nexus evaluation include:

1. Flow characteristics and functions of the tributary itself in combination with the functions performed by any wetlands adjacent to the tributary

2. Hydrologic characteristics, including but not limited to volume, duration, and frequency of flow; proximity to TNW; size of the watershed; average annual rainfall; and average annual winter snow pack

3. Ecological characteristics including but not limited to the ability of tributaries to carry pollutants and flood waters to TNWs, provide aquatic habitat that support TNW, trap and filter pollutants or store flood waters, and maintain water quality.

The discharge of dredge or fill material into waters, including wetlands, requires authorization from the USACE prior to impacts.

2.6.2 California Department of Fish and Game

Pursuant to Section 1602 of the Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

Per 14 CCR 1.72, a "stream" (including creeks and rivers) is "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation."

Per 14 CCR 1.56, a "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by means of entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

2.6.3 California Regional Water Quality Control Board

Pursuant to Section 401 of the federal CWA, the RWQCB regulates discharging waste, or proposing to discharge waste, within any region that could affect a "water of the State" (Water Code, Section 13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code, Section 13050(e)). Before the USACE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter-Cologne Water Quality Control Act.

2.6.4 County of Santa Barbara

The County regulates wetlands and streams under the *Environmental Thresholds and Guidelines* Manual (County 2008, revised 2015; see *Section 2.8.1*). The County defines wetland boundaries by a one-parameter approach (i.e., hydric soils, hydrophytic vegetation, or hydrology) and riparian habitats as the terrestrial or upland area adjacent to freshwater bodies (County of Santa Barbara 2008, revised July 2015).

2.7 California Environmental Quality Act

The CEQA requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also

provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

California Environmental Quality Act Guideline 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (AEP 2008). A rare animal or plant is defined in Guideline 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guideline 15380(c).

2.8 Local Laws, Ordinances, Regulations, and Standards

In addition to the federal and state regulations identified above, the following local laws, ordinances, regulations, and standards apply to the environmental review of potential impacts on biological resources as a result of the project.

2.8.1 Santa Barbara County *Environmental Thresholds and Guidelines Manual*

The Santa Barbara County *Environmental Thresholds and Guidelines Manual* (County 2008, revised July 2015) defines native grassland according to a minimum percent cover and area of cover threshold of native grassland species. According to the County (2008), a native grassland is an area where native grassland species comprise 10 percent or more of the total relative cover. Relative cover is the cover of a particular species as a percentage of total plant cover of a given area.

Native grasslands that are dominated by perennial bunchgrasses, such as purple needlegrass (*Stipa pulchra*), tend to be patchy (the individual plants and groups of plants tend to be distributed in patches). Therefore, for example, where a high density of small patches occurs in an area of one acre, the whole acre should be delineated if native grassland species comprise 10 percent or more of the total relative cover, rather than delineating all patches of less than one acre (County 2008).

Removal or severe disturbance to a patch or patches of native grassland less than one-quarter acre that is clearly isolated and is not part of a significant native grassland or an integral component of a larger ecosystem is usually considered insignificant (County 2008).

Wetland areas and riparian habitats present within the biological survey area (as described in *Section 3.0, Methods*) and under the jurisdiction of the County will be included in the review of the project. ~~A formal wetland delineation/jurisdictional determination was completed in association with this report; however, previously identified.~~ Dudek prepared a Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek & Hidden Canyon in June 2016, revised in December 2018 (Dudek 2018). Jurisdictional resources ~~as well as potential jurisdictional resources~~ identified by Dudek in ~~during the 2015~~ 2016 ~~surveys~~ are discussed below ~~to assist~~ and in ~~with~~ the impact assessment~~.~~

2.8.2 Orcutt Community Plan

The Orcutt Community Plan (OCP, County 2004) is a component of the Santa Barbara County Comprehensive Plan, which provides a focused framework for development within the Orcutt geographic area. The OCP includes a set of goals and objectives which provided the basis for the policies adopted in the plan. Development standards detailed in the OCP are measures that will be incorporated into development projects to provide consistency with certain policies of the OCP (County 2004).

In accordance with OCP (County 2004) Biological Policies, Actions & Development Standards the follow applies for trees:

> ***Policy BIO-O-3:*** *Established native trees in designated open space areas shall be protected. Established native trees in developable areas shall be incorporated into the site landscaping plan to the greatest degree feasible except where it would interfere with reasonable development of a property. Native trees shall be considered established if they are six feet in height.*
>
> ***DevStd BIO-O-3.1:*** *To the maximum extent feasible, development shall be designed to avoid damage to established native trees (e.g., oaks) by incorporating setbacks, clustering, or other appropriate methods. Areas protected from grading, paving, and other disturbances shall include the area 6 feet outside of established native tree driplines, unless this distance would interfere with reasonable development of a property. Where native trees are removed, they shall be replaced in a manner consistent with County standards.*
>
> ***Policy BIO-O-4:*** *Non-native trees (e.g., eucalyptus groves and windrows) that provide known raptor nesting or key roosting sites shall be protected; nonnative specimen trees shall be protected to the greatest degree feasible except where it would interfere with*

reasonable development of a property. Non-native trees of less than 25 inches in diameter at breast height do not qualify as specimens for this Policy.

DevStd BIO-O-4.1: *Where non-native trees are removed for development the County should consider replacement with native trees.*

2.8.3 Conservation Element – Oak Tree Protection in the Inland Rural Areas of Santa Barbara County

The Oak Tree Protection in the Inland Rural Areas of Santa Barbara County section of the Santa Barbara County Comprehensive Plan Conservation Element provides for protection of native oak trees in the inland rural areas of Santa Barbara County (County 2009). To achieve protection of the remaining oak tree resources, the County will regulate the removal of oak trees; seek financial assistance from landowners, incentives and purchase toward their conservation; and distribute information about oak trees and their propagation to promote oak woodland restoration. In accordance with Conservation Element – Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (County 2009) the follow applies for trees:

Oak Tree Protection Policy 1: *Native oak trees, native oak woodlands and native oak savannas shall be protected to the maximum extent feasible in the County's rural and or agricultural lands. Regeneration of oak trees shall be encouraged. Because of the limited range and increasing scarcity of valley oak trees, valley oak woodlands and valley oak savanna, special priority shall be given to their protection and regeneration.*

Development Standard 1: Protection of all species of mature oak trees. *All development shall avoid removal or damage to mature oak trees, to the maximum extent feasible. Mature oak trees are considered to be live oak trees six inches or greater in diameter at breast height and blue oak trees four inches or greater diameter at breast height, or live and blue oaks six feet or greater in height. Native oak trees that cannot be avoided shall be replanted on site. When replanting oak trees on site is not feasible, replanting shall occur on receiver sites known to be capable of supporting the particular oak tree species, as in areas contiguous with existing woodlands or savannas where the removed species occurs. Replanting shall conform to the County's Standard Conditions and Mitigation Measures. (This development standard applies to oak trees other than valley oaks. Valley oak trees are addressed in separated Development Standards.)*

3 METHODS

Dudek conducted focused biological surveys on the project site to document the presence or absence of select special-status species and other sensitive biological resources that had potential to occur or were known to occur based on past surveys. Additionally, biological reconnaissance surveys were completed during each of the site visit, which included an evaluation of the site as potential habitat for listed and special-status species known to occur in the region. The biological reconnaissance surveys did not confirm absence of listed or special-status species; however, their presence was documented, if observed. Based on a review of prior survey results (LFR 2004, 2005; VJS 2005), Key Site 21 is known to support federally listed species including California tiger salamander and California red-legged frog. Since presence was already confirmed for these two federally listed species, protocol-level surveys were not conducted in this survey period (January to June 2016), although it is understood that prior surveys are over ten years old and additional survey maybe required in support of future Endangered Species Act (ESA) permitting. The biological survey area (BSA) included the proposed residential development area (*Figure 2*, Site Plan), improved recreational open space, and preserved open space areas. In total, the overall BSA is approximately 189 acres (*Figure 3*). Other tasks, such as vegetation mapping, were updated due to changes in nomenclature or site conditions. The winter 2015-2016 and spring/summer 2016 surveys included:

1. Raptor Nesting and Hunting Surveys
2. Vegetation Community Mapping
3. ~~Purple Needle Grass~~ Native Grassland Assessment
4. Focused Floristic Surveys

The methodologies for the different types of surveys are detail below. During surveys, biologists walked the BSA and recorded visual and audible observations. The steeper, less accessible portions of the site, particularly the southeastern and southwestern portions, were surveyed partially on foot, with the use of binoculars, and using aerial interpretation. *Table 1*, in *Section 4.0 Results*, provides the dates, times, site conditions and observations for each survey.

3.1 Literature Review

The presence of documented sensitive biological resources within the project site and the surrounding U.S. Geological Survey (USGS) quadrangles were identified through a query of the California Natural Diversity Database (CNDDB) (CDFW 2016a), USFWS Database (USFWS 2016a), and USFWS Information for Planning and Conservation System (USFWS 2016b), and through a review of prior survey reports for the project site (LFR 2004, 2005; VJS 2005). Additional data sources were also

referenced, including the California Native Plant Society's online Inventory of Rare and Endangered Plants (CNPS 2016); the on-line database Calflora: Information about California Plants for Education, Research and Conservation (Calflora 2016); the CDFW Special Animals List (CDFW 2016b); *The Birds of Santa Barbara County, California* (Lehman 2015); and ebird (Audubon and Cornell 2016).

3.2 Vegetation Mapping

In 2003, the Vegetation Classification and Mapping Program of the California Department of Fish and Game (CDFG; now called the California Department of Fish and Wildlife [CDFW]), Wildlife and Habitat Data Analysis Branch, published the *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CNDDB) (CDFG 2003 [updated 2011]). In September 2010, the CDFG published the *Natural Communities List* (NCL; CDFG 2010), which uses the scientific name of the dominant species in that alliance as the alliance name, which is based on the *Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009). These classification systems focus on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed (as opposed to predicting climax or successional stages). Nomenclature for on-site vegetation communities reflects the most current system, MCV2, and NCL. All vegetation communities were mapped based on these sources.

Vegetation mapping was conducted in April 2016 in conjunction with the initial floristic survey (*Table 1, Section 4.0 Results*). Vegetation mapping was conducted ~~for the entire~~ within Key Site 21 to include areas not occupied by the Rancho Maria Golf Course (Figure 4). All mapping was performed in the field, through interpretation of field maps with a high quality aerial photographic base and/or delineation using a Trimble Geo XT Global Position System (GPS) unit capable of submeter accuracy for all sensitive vegetation. The maximum scale of the field map was 100-scale (1-inch = 100-foot) base. The GPS data was downloaded into GIS ArcView for placement onto an aerial figure. In combination with the GPS data, GIS technicians digitized the delineated vegetation boundaries from field maps using ArcView to create the vegetation community map.

3.3 ~~Purple Needle Grass~~ Native Grassland Assessment

In April and May 2016 Dudek conducted assessments of ~~purple needle grass~~ native grasslands throughout the BSA (Figure 5). Initial efforts to locate and map ~~purple needlegrass~~ native grasses were conducted simultaneously with vegetation mapping and the special-status plant species survey April 2016 pass. During vegetation mapping and special-status plant species surveys, Dudek biologists marked ~~purple needle~~ native grass patch locations on an electronic map in Avenza PDF Maps (Avenza 2016). Then, during the native grassland assessment b~~B~~iologists ~~then~~ marked the outer boundaries of the ~~purple needle grass~~ native grassland patches with a Trimble

Geo XT Global Position System (GPS) unit capable of submeter accuracy. These native grassland patch boundaries were recorded with a GPS to capture observed patches of native grasses regardless of the size of the patch or the percent cover of native grasses.

Biologists collected transect data in May when native bunchgrasses are most visible. The majority of mapped populations of ~~purple needlegrass plants~~ native grasses were assessed and surveyed regardless of size of the population or percent coverage or whether they constituted a ~~purple needlegrass~~ native grassland vegetation community based on a standard mapping unit. The transect data was located in a non-random design so that they were evenly distributed throughout the populations of ~~purple needle grass~~ native grassland across the project site. Transect lengths were variable and ranged from 4.0 meters to 65.0 meters (13.12 to 213.26 feet). The percent cover of ~~purple needlegrass grass~~ native, other species present, and bare ground were recorded at intervals of 2.0 meters (6.56 feet) or 5.0 meters (16.40 feet), depending on the size of the ~~purple needle grass~~ native grassland patch, along each transect within a meter square plot (i.e., quadrat) alternating from the left to right, or left to right side of the transect tape. The number of individual ~~purple needlegrass~~ native grass "bunches" present within the quadrat was also recorded. This information was then used to determine the mean, minimum, and maximum for percent coverage of ~~purple needlegrass~~ native grasses and number of plants, or bunches, within each ~~purple needle grass~~ native grassland polygon.

Mapping of native grasslands occurred in areas that met the County's (2008) definition as "an area where native grassland species comprise 10 percent or more of the total relative cover". As described in the County's definition, perennial bunchgrass dominated grasslands tend to be patchy and, therefore, mapping of these native vegetation communities included all patches encountered during field surveys.

3.4 Focused Floristic Survey

Prior to conducting focused floristic field surveys, Dudek biologists completed a literature review that included a search of the CNDDB, to identify special-status plant species that had occurred, or that could potentially occur, within or in the vicinity of the project site. For the purposes of this report, special-status plant species are those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under ESA; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the CESA; plants that are California Rare Plant Rank (CRPR) 1, 2, 3, or 4 in the CNPS's online Inventory of Rare and Endangered Plants (CNPS 2016); and plants considered locally sensitive by the County of Santa Barbara.

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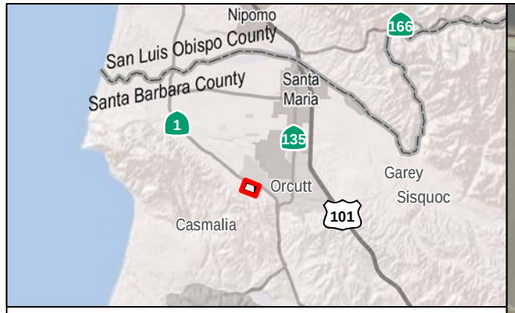

Key Site 21
Project Parcels
Biological Survey Area

0 200 400 800 Feet

AERIAL SOURCE: NAIP 2014

DUDEK

FIGURE 3

Biological Survey Area

Biological Resources Assessment Report for The Neighborhoods of Willow Creek and Hidden Canyon Project

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Dudek biologists conducted seasonally timed floristic surveys of the project site in April and June 2016 throughout the proposed development areas and in other parts of the BSA where natural habitats occur. The BSA is defined in Section 3 and is displayed on ~~as shown as the BSA in~~ *Figure 3*. Floristic surveys were not conducted in currently developed areas, the part of the site in the southwest corner that is bounded on two sides by fencing and by a riparian strip on the northeast, and the part of the site along the southern boundary that extends to the southeastern corner of the site. Surveys focused on the development footprint and the areas not constrained by the riparian habitats. Portions of the site not included in the floristic survey consist of areas that will not be disturbed by development activities.

Dudek biologists familiar with the target special-status plant species and general flora of the coastal Santa Barbara County region conducted the floristic surveys in accordance with the USFWS, CDFW, and CNPS guidelines (USFWS 2000; CDFG 2009; CNPS 2001). These surveys involved pedestrian transects consisting of at least two biologists walking approximately 10 to 20 meters (33 to 66 feet) apart, depending on topography. During the surveys, when a special-status species was observed, the occurrence was mapped using a Trimble GPS unit with sub-meter accuracy.

Plant species bloom at slightly different times each year, depending on temperature, rainfall patterns, elevation, and other environmental factors. Reference population checks involve locating known populations of special-status plant species during a timeframe when they are known to be blooming or exhibit other phenological characteristics that allow for species identification. Dudek biologists also visited reference sites for special-status plants with potential to occur on the project site.

Native and naturalized plant species encountered during the surveys were identified and recorded. Scientific and common names for plant species with a California Rare Plant Rank (formerly CNPS List) follow the California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2016). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2016) and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Plants Database (USDA 2016).

3.5 California Tiger Salamander

Previous surveys include the VJS Biological Consulting focused surveys in 2004-2005 and habitat assessments and aquatic survey for CTS larvae in 2004 by LFR Levine-Fricke. Habitat assessments for California tiger salamander (CTS) were conducted in December 2015 and January and March 2016 to document the current status of suitable aquatic and upland habitat for CTS within the project site and BSA. However, based on the species known use of the project site and

BSA, the habitat assessment did not include all of the parameters detailed in the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS and CDFG 2003). The assessments involved examining the entirety of the BSA for suitable aquatic habitat (i.e., breeding pools) along with adjacent upland movement and dispersal habitat supporting small mammal burrows necessary for the species. Although protocol-level surveys were not conducted in 2015-2016, the results of previous focused surveys completed by VJS and 2015-2016 habitat assessments provide an appropriate base of information to determine potential use of the project site by this species.

3.6 California Red-Legged Frog

Habitat assessments for the California red-legged frog (CRLF) were conducted in December 2015, and January and March 2016. The assessments involved examining the BSA for suitable aquatic habitat (i.e., breeding pools) and adjacent dispersal habitat suitable for the species. Although protocol-level surveys were not conducted in 2015-2016, the results of the LFR Levine-Fricke surveys in 2004 combined with habitat data collected in 2015-2016 provide an appropriate base of information to determine potential use of the project site by this species. And, similar to CTS, the habitat assessment did not include all of the parameters contained in the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

3.7 Nesting Raptors

To determine raptor usage of the site for nesting, perching, and foraging, Dudek conducted a total of three focused surveys for nesting raptors with one survey in January, one in March, and one in April 2016 throughout Key Site 21 (*Table 1, Section 4.0 Results*). Suitable trees within the boundary of the Rancho Maria Golf Course were also included in the survey. Physical access was not permitted on other adjacent sites, so use of these adjacent lands by raptor species could only be assessed from vantage points within the BSA.

Surveys consisted of walking the upland portions of the sites while searching for raptors and existing nests. Each survey lasted approximately three to four hours. Biologists spent most of this time observing from upland vantage points providing views of large parts of the site. During the surveys, Dudek biologists examined suitably sized trees within the BSA for raptor nests and perching raptors. Existing raptor nests observed were identified and mapped. Foraging behavior and the extent of foraging on the site was mapped whenever observed. Occurrences of raptor species were mapped and behavior was noted.

3.8 Hydrologic Feature Assessment

Assessments and mapping of potential hydrologic features within the BSA was conducted during the 2015-2016 surveys (Dudek 2018). ~~Although a formal wetland delineation/jurisdictional determination was not completed in 2015-2016,~~ A formal wetland delineation was performed by PCR, Inc. in 2003 and LFR completed an informal confirmation of the PCR survey results in 2005 (LFR 2005). In addition to recording observations during field surveys, Dudek queried the National Hydrography Dataset (NHD) (USGS 2016) and National Wetlands Inventory (NWI) (USFWS 2016c) to locate known wetland resources.

Dudek prepared a Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek & Hidden Canyon in June 2016, revised in December 2018 (Dudek 2018).~~Since a formal wetland delineation was not completed, the jurisdictional limits could not be defined in this report.~~ The assessment summarized herein is intended to provide supporting information on ~~the potential presence of~~ jurisdictional waters within and adjacent to the project site and BSA that may require coordination/consultation with the regulatory agencies.

3.9 Tree Inventory

The memo is based on an arborist tree survey conducted by Kevin Small of PleinAire Design Group on September 30, 2016 (PleinAire Design Group 2016) and project site CAD (PGP.DWG) provided to Dudek (Orcutt Rancho LLC 2017). During the arborist tree survey, PleinAire Design Group inventoried all trees within the proposed project site and a 50-foot buffer. Each tree was assigned an identification number and the following was recorded for each tree; species, diameter at breast height (DBH), and canopy radius in four compass directions. These parameters were collected for each tree with a minimum DBH of 4 inches and variation in data collection was made for different tree species. During December 2018, Dudek conducted a tree inventory within the sewer line easement north of main portion of the project site and north of Highway 1/Cabrillo Highway (Dudek 2018a). The tree inventory focused on tree trunks within the sewer line easement. Each tree with a DBH of greater than 1 inch was assigned an identification number and the species of each tree, DBH, and height was recorded.

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4 RESULTS

Thirteen general physiognomic and physical location types were mapped during Dudek field surveys, 10 of which are identified by the *Manual of California Vegetation Second Edition* (MCV2; Sawyer et al. 2009), *A Manual of California Vegetation* (MCV1; Sawyer and Keeler-Wolf 1995), and/or the *Natural Communities List* (NCL; CDFG 2010). Special-status plant communities documented include purple needle grass grasslands, perennial rye grass grassland, coyote brush scrub, California sagebrush scrub, cattail march, arroyo willow thickets, and coast live oak woodland. During 2015 and 2016 Dudek surveys, no focused aquatic or formal USFWS protocol presence/absence surveys were conducted. During LFR surveys performed in 2004 and 2005, two sensitive plant species, Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*; CNPS CRPR 1B.1) and Kellogg's horkelia (*Horkelia cuneata* var. *sericea*; CNPS CRPR 1B.1), were documented within the BSA (LFR 2005). During 2016 Dudek floristic surveys, Blochman's dudleya was observed; however, Kellogg's horkelia was not observed. Dudek visited the Kellogg's horkelia population previously documented and keyed the species to a commonly occurring species (see *Section 4.4.3*). Two federally listed wildlife species also occur within the BSA: California tiger salamander (VJS 2005) and California red-legged frog (LFR 2004). Biological surveys completed in December 2015 through June 2016 are summarized in *Table 1*.

Table 1
Biological Survey Schedule

Survey Date	Time	Personnel	Survey Conditions	Survey Focus
12/16/15	9:00 a.m.– 2:05 p.m.	John Davis IV (JD), Heather Moine (HM), Randall McInvale (RM)	49°F–61°F; 0% could cover (cc); 3-4 miles per hour (mph) winds	Wildlife and Botanical/Floristic Habitat Assessment[1]
1/19/16	7:05 – 11:00 a.m. / 3:00. – 4:00 p.m.	RM	60°F–61°F; overcast/ rain; 2-3.5 mph winds	Raptor Nest, Aquatic Habitat, and Native Grassland Survey[1]
3/8/16	7:00 a.m. – 3:00 p.m.	JD, RM	46°F–65°F; 0-20% cc; 0-3 mph winds	Raptor Survey and Aquatic Habitat Assessment
4/20/16	9:40 a.m. – 5:05 p.m.	HM, RM	66°F–72°F; 0-30% cc; 0-4 mph winds	Special-status Plant Species Survey, Native Grassland Survey, Vegetation Mapping
4/21/16	6:30 a.m. - 8:15 a.m. / 8:15 a.m. – 5:40 p.m.	HM, RM	53°F–68°F; 30% cc; 5-8 mph winds	Special-status Plant Species Survey, Native Grassland Survey, Vegetation Mapping, Raptor Survey
4/22/16	9:00 a.m. – 2:30 p.m.	HM, RM	64°F–68°F; overcast/ rain upon departure; 3-8 mph winds	Special-status Plant Species Survey, Native Grassland Survey, Vegetation Mapping

Table 1
Biological Survey Schedule

Survey Date	Time	Personnel	Survey Conditions	Survey Focus
5/23/16	8:10 a.m. – 4:30 p.m.	HM, Amanda Shoemaker	53°F–64°F; 10-20% cc; 3-5 mph winds	Native Grassland Survey
5/28/16	8:40 a.m. – 3:15 p.m.	HM, Andrea Dransfield	56°F–65°F; 100% cc clearing to 10% cc; 3-6 mph winds	Native Grassland Survey
6/22/16	7:15 a.m. – 2:10 p.m.	HM	57°F–69°F; 0% cc; 1-5 mph winds	Special-status Plant Species Survey

[1]**Notes:**
Quantitative data not collected for these efforts (site visit on 12/16/15 and the Native Grassland Survey on 1/19/16). Only preliminary qualitative observations made for these efforts.

4.1 Vegetation Communities and Wildlife Habitats

Vegetation mapping was conducted in April 2016 in conjunction with the initial floristic survey. This section describes the vegetation communities and wildlife habitats observed in the BSA (*Figure 4*). A total of 13 general physiognomic and physical location types were mapped during field surveys, 10 of which are identified by MCV2 (Sawyer et al. 2009), MCV (Sawyer and Keeler-Wolf 1995), and/or NCL (CDFG 2010). These vegetation communities and land cover types are summarized in *Table 2* and described further below.

Table 2
Summary of Existing Vegetation Communities and Wildlife Habitats and Their Acreage in Key Site 21 and the Sewer Line Easement

Physiognomic Category	General Habitat	Vegetation Communities	State Rank/County Status	Total (Acres)	
				~~*Total (Acres)*~~ *Key Site 21*	*Sewer Line Easement*
Herbaceous Alliances and Stands	Grassland	California annual grassland	- / -	157.19	0.02
		Purple Needle Grass Grassland	S3 / ~~special-status~~ sensitive	1.86	--
		Perennial Rye Grass Grassland	S3 / #	0.73	--
	Forb Dominated	Bristly Ox-tongue	- / -	0.92	--
		Cattail Marshes	S5 / #	0.13	--
			Herbaceous Alliance and Stands	*160.83*	*0.02*
Shrubland Alliances and	Coastal Scrub	Coyote Brush Scrub Alliance	S5 / ~~special-status~~ sensitive	20.10	--

Table 2
Summary of Existing Vegetation Communities and Wildlife Habitats and Their Acreage in Key Site 21 and the Sewer Line Easement

Physiognomic Category	General Habitat	Vegetation Communities	State Rank/County Status	Total (Acres)	
				~~*Total (Acres)*~~ *Key Site 21*	*Sewer Line Easement*
Stands (Upland)		California Sagebrush Scrub Alliance	S5 / ~~special status~~ sensitive	5.91	--
			Shrubland Alliances and Stands (Upland) Total	*26.01*	--
Shrubland Alliances and Stands (Wetland)	Riparian Scrub	Arroyo Willow Thickets	S4 / ~~special status~~ sensitive	3.79	0.11
			Shrubland Alliances and Stands (Wetland) Total	*3.79*	*0.11*
Tree Alliances and Stands	Woodlands	Eucalyptus Grove	- / -	5.08	--
		Coast Live Oak Woodland-Arroyo Willow Thickets	S4 / ~~special status~~ sensitive	15.17	--
		Coast Live Oak Woodland	S4 / ~~special status~~ sensitive	10.03	--
			Tree Alliances and Stands Total	*30.28*	--
Non-Vegetated Habitats		Developed	- / -	112.72	0.01
		Debris	- / -	0.74	--
		Fallow Agriculture	- / -	--	0.66
			Non-Vegetated Habitats Total	*113.46*	*0.67*
			Grand Total	**334.37***	**0.80**

Notes:
State Rank – the alliance's rarity and threat in California.
S3: 21-100 viable occurrences statewide, and more than 2,590-12,950 hectares
S4: Greater than 100 viable occurrences statewide, and/or more than 12,950 hectares
S5: Demonstrably secure because of its statewide abundance
*: Acreages are based on GIS calculations, which vary slightly from the Key Site 21 acreage included in the OCP.

4.1.1 Herbaceous Alliances and Stands

4.1.1.1 Herbaceous Dominated Habitats (Upland)

The BSA has approximately 160.85 acres ~~or 72.5 percent coverage~~ of herbaceous dominated habitats composed of five individual vegetation communities. These five vegetation communities include three grassland-dominated habitats (California annual grassland, purple needle grass grassland, and perennial rye grass grassland) and two forb-dominated habitats (bristly ox-tongue and cattail marshes).

GRASSLAND-DOMINATED HABITATS

California annual grassland (CAG) (MCV1) (Sawyer and Keeler-Wolf 1995) is described as being dominated by annual grasses and herbs in the ground layer including bromes (*Bromus* sp.), California poppy (*Eschscholzia californica*), filaree (*Erodium* sp.), lupine (*Lupinus* sp.), mustards (*Brassica* sp.), and oat (*Avena* sp.). Vegetation community composition in the BSA coincided with this vegetation community description as no vegetation association or alliance in MCV2 (Sawyer et al. 2009) appropriately characterized this type of vegetation within the BSA. Although annual brome grasses form the dominant portion of the plant species composition, native annual forbs constitute a significant cover percent during the blooming period in select areas. California annual grassland occurs widely throughout the BSA and is the dominant vegetation community on-site (*Figure 4*). California annual grassland comprises 157.21~~19~~ acres, ~~or 71.1 percent,~~ of the vegetation cover in ~~the BSA~~ Key Site 21 and the sewer line easement.

Vegetation in this habitat type is composed primarily of non-native short to tall annual grasses and native and non-native broad-leafed forbs. Noxious weeds are also present in disturbed areas adjacent to this habitat type. Dominant grasses include ripgut grass (*Bromus diandrus*), compact brome (*Bromus madritensis)*, wild oat (*Avena fatua*), Italian ryegrass (*Festuca perennis*), rat-tail fescue (*Festuca myuros*), and dove weed (*Croton setiger*). Flowering herbs include western vervain (*Verbena lasiostachys*), scarlet pimpernel (*Lysimachia arvensis*), common catchfly (*Silene gallica*), and island false bindweed (*Calystegia macrostegia* ssp. *cyclostegia*).

Larger mammals such as the coyote (*Canis latrans*) use the California annual grassland as a movement corridor. Other mammals that may be found here include the California vole (*Microtus californicus*) and Botta's pocket gopher (*Thomomys bottae*). A variety of bird species forage here, including raptors such as the red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*), turkey vultures (*Cathartes aura*) searching for carrion, and wintering songbirds such as the horned lark (*Eremophila alpestris*) and savannah sparrow (*Passerculus sandwichensis*) (Lehman 2015). California annual grassland also comprises the potential habitat for burrowing owl (*Athene cunicularia*) within the BSA.

Grasslands that are bordered by habitats containing trees are particularly important for raptors because the birds can use the large trees for nesting, roosting, and as observation points to locate potential prey within nearby grassland habitats. Reptiles common to grasslands have been observed on-site and include common side-blotched lizard (*Uta stansburiana elagans*). In addition, in areas where California annual grassland borders creeks, wetlands, and seasonal pools, amphibians including California tiger salamander, California red-legged frog, California (western) toad (*Anaxyrus boreas halophilus*), and Baja California treefrog (*Pseudacris hypochondriaca*) may be seasonally evident.

AERIAL SOURCE: NAIP 2014

DUDEK

FIGURE 4

Vegetation Communities and Land Cover Types

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The *Purple Needle Grass Grassland Alliance* (PNGG) (MCV2 and NCL) occurs along the entire coast of California, the Central Valley, and the western Mojave. It includes the perennial bunchgrass purple needlegrass as a dominant or co-dominant grass. These communities are mid-height grasslands, typically up to 2 feet tall. According to Holland (1986), native and introduced annuals grow between bunches of purple needlegrass and often exceed it in cover. Trees or shrubs may also be present within the grassland (NatureServe 2009). Purple needle grass grassland occurs on deep soils that have a high clay content. Sites that are moist or waterlogged during winter and very dry during summer are favorable (Holland 1986).

Purple needle grass grassland occurs in patches on-site, particularly in the central-western and southeastern portions of the BSA, where the largest patches occurs (*Figure 4*). These patches comprise a total of 1.86 acres of the vegetation cover in Key Site 21 and the sewer line easement ~~or approximately 1.0 percent, of the vegetation cover in the BSA~~. Several smaller patches occur on the site; however, these patches do not meet the County criteria of 0.25-acre patch size. Species occurring on-site that are associates in the purple needle grass grassland alliance are ripgut grass, soft brome, wild oat, and Italian ryegrass. Native flowering herbs include scarlet pimpernel, common catchfly, common sandaster (*Corethrogyne filaginifolia*), and island false bindweed. Wildlife found in purple needle grass grassland is similar to that found in other grasslands.

The *Creeping Rye Grass Turf / Perennial Rye Grass Grassland* (RGG) (MCV2 and NCL) vegetation community is dominated largely by beardless wildrye (*Elymus triticoides*) and also includes wild oat and Italian ryegrass in the herbaceous layer. One patch of perennial rye grass grassland occurs in the central-western portion of the BSA surrounded by annual brome grasslands and coyote brush scrub (*Figure 4*). This community comprises 0.73 acres, ~~or 0.3 percent,~~ of the vegetation cover in ~~the BSA~~ Key Site 21 and the sewer line easement.

Wildlife species found in this community are similar to those occurring in California annual grassland vegetation. However, the greater density of the grasses in this community compared to some other grasslands may limit somewhat its usefulness for foraging by some raptors, such as the red-tailed hawk and the white-tailed kite.

FORB-DOMINATED HABITATS

Bristly Ox-tongue (BOT) is not recognized in MCV2 or NCL. Bristly ox-tongue patches are dominated by bristly ox-tongue (*Helminthotheca echioides*). These patches occur throughout California except in deserts and the Great Basin. Most commonly, bristly ox-tongue occurs in seasonally wet places near the coast of southern California. Bristly ox-tongue often occurs in waste places, roadsides, pastures, fields, crop fields, vineyards, orchards, gardens, landscaped areas, and other disturbed open places. Bristly ox-tongue thrives on clay soils, especially those high in

calcium. This species occurs from sea level to 450 meters (1,476 feet) amsl (DiTomaso and Healy 2007). Bristly ox-tongue patches occur in the slightly depressed area within the northeast corner of the BSA (*Figure 4*). Bristly ox-tongue comprises 0.92 acres ~~or 0.4 percent~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~.

Some common terrestrial vertebrates may be largely absent here. Some small mammals, such as California voles, may sometimes occur here. In addition, reptiles such as the Coast Range fence lizard (*Sceloporus occidentalis bocourtii*) may also occur. Baja California treefrogs likely are found here. Some common songbird species, such as the common yellowthroat and song sparrow, have some potential to nest here.

The *Cattail Marshes* (CTM) (MCV2 and NCL) vegetation community is dominated by broadleaf cattail (*Typha latifolia*). Throughout California, the cattail marsh alliance occurs in brackish or semi-permanently flooded freshwater marshes. Cattail marshes have a continuous or intermittent herbaceous canopy of less than 1.5 meters (4.9 feet) in height. This alliance occurs from sea level to 350 meters (1,148 feet) amsl (Sawyer et al. 2009). Cattail marshes comprise 0.13 acres~~, or 0.06 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~ (*Figure 4*).

The density of ground cover within this community and its frequent inundation deter many mammals and other terrestrial vertebrates from occurring here. The principal vertebrate species occurring in this community are songbirds and aquatic vertebrates including Baja California treefrog. Song sparrows, common yellowthroats, and red-winged blackbirds may nest here. A variety of aquatic invertebrates occurs here as well.

4.1.2 Shrubland Alliances and Stands

There are approximately ~~29.8~~ 29.91 acres~~, or 13.4 percent, coverage~~ of habitat in the scrub and chaparral physiognomic group, including two general habitat types: coastal scrub and riparian scrub. The following section describes the coastal scrub and riparian scrub communities that were observed in Key Site 21 and the sewer line easement ~~the BSA~~.

4.1.2.1 Coastal Scrub

Coastal scrub is a general habitat type in the more general physiognomic group scrub and chaparral communities. On-site, there are two alliances in this general habitat type: California sagebrush scrub and coyote brush scrub. Each alliance is described below.

California Sagebrush Scrub Alliance (CSS) (MCV2 and NCL) contains coastal sagebrush (*Artemisia californica*) as the sole or dominant shrub species. It has a continuous or intermittent shrub canopy of less than 2 meters (7 feet) in height with a variable ground layer. This alliance

often occurs on steep, north-facing slopes and rarely in flooded, low-gradient deposits along streams in shallow alluvial or colluvial-derived soils. California sagebrush scrub generally grows in areas with a long summer dry season with approximately 35 centimeters (14 inches) of annual precipitation that generally falls between November and April (NatureServe 2009).

California sagebrush scrub occurs along the central and south coast of California, as well as on the Channel Islands. Inland, this alliance occurs along the base of the Transverse and Peninsular ranges. In San Benito County, California, sagebrush scrub occurs in the central coastal interior mountains (NatureServe 2009). This alliance occurs between sea level and 1,200 meters (3,937 feet). It is found in three stands in the southern portion of the BSA. These stands are located on the upper slopes of the canyon features associated with the ephemeral waterways that traverse the BSA from southeast to northwest (*Figure 4*). California sagebrush scrub comprises approximately 5.91 acres~~, or 2.7 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~. Species associated with the California sagebrush scrub include Menzies' goldenbush (*Isocoma menziesii*), ladies' tobacco (*Pseudognaphalium californicum*), coyotebrush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and Pacific poison oak (*Toxicodendron diversilobum*). The herbaceous understory included a sparse cover of various brome species, as well as scarlet pimpernel and redstem stork's bill.

California sagebrush scrub, unlike some more open habitats, is not ideal for passage by some larger mammals. However, scrub provides nesting habitat and cover for a variety of wildlife species, particularly in combination with adjacent habitats that may provide better foraging opportunities. Among mammals, brush rabbits (*Sylvilagus bachmani*) use sagebrush scrub for refuge. Common side-blotched lizards are the most common reptile found here. Birds that commonly nest in California sagebrush include the wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), California towhee (*Melozone crissalis*), and spotted towhee (*Pipilo maculatus*) (Lehman 2015).

Coyote Brush Scrub Alliance (CYS) (MCV2 and NCL) includes coyotebrush as the dominant or co-dominant shrub in the canopy. Coyote brush scrub has a variable shrub canopy less than 3 meters (10 feet) in height with a variable ground layer. Throughout California, the coyote brush scrub alliance occurs on stream sides, stabilized dunes of coastal bars, river mouths, spits along the coastline, coastal bluffs, open slopes, ridges, and terraces. Soils are moderately deep to deep, well-drained sandy loams and sandy clay loams (NatureServe 2009).

The coyote brush scrub alliance inhabits the entire coast of California and extends into southern Oregon. Inland, this alliance occurs in the interior of the Coast Ranges and in the Transverse Ranges of the Los Padres National Forest in southern California (NatureServe 2009). Coyote brush scrub occurs from sea level to 1,500 meters (4,921 feet) amsl (Sawyer et al. 2009).

Coyote brush scrub occurs along riparian habitats and within three areas in the western portion of the BSA (*Figure 4*). Some of the larger stands are fairly dense, with a sparse cover of herbaceous species present. Coyote brush scrub comprises approximately 20.10 acres~~, or 9.1 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~.

Species associated with coyote brush scrub on-site include California sagebrush, Pacific poison oak, and California figwort (*Scrophularia californica*). Herbaceous species found in association with this community on-site include bromes, wild oats, and black mustard (*Brassica nigra*). Wildlife using the coyote brush scrub on the site is similar to that mentioned as using California sagebrush scrub, above.

4.1.2.2 Riparian Scrub

Riparian scrub is a general habitat type in the more general physiognomic group scrub and chaparral communities. Within Key Site 21 and the sewer line easement ~~the BSA~~, only one alliance in this category occurs: arroyo willow thickets.

The *Arroyo Willow Thickets Alliance* (AWT) (MCV2 and NCL) includes arroyo willow (*Salix lasiolepis*) as the dominant or co-dominant shrub or tree in the canopy. Arroyo willow thickets has an open to continuous canopy less than 10 meters (33 feet) in height with a variable ground layer. Arroyo willow thickets occur along stream banks and benches, on slope seeps, and on stringers along drainages (Sawyer et al. 2009).

Some species associated with the arroyo willow thickets alliance include bigleaf maple (*Acer macrophyllum*), coyotebrush, mule-fat (*Baccharis salicifolia*), redosier dogwood (*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), blue elderberry, and other willows (*Salix* spp.) (Sawyer et al. 2009).

Arroyo willow thickets occur in several patches in the southeastern, central-eastern, and northeastern portions of the BSA (*Figure 4*). These stands are generally located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources. On-site, this community is dominated by arroyo willow and sometimes includes a low cover of coyotebrush, poison hemlock (*Conium maculatum*), Pacific poison oak, and coast live oak (*Quercus agrifolia*). Arroyo willow thickets comprise ~~3.79~~ 3.90 acres~~, or 1.7 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~on the site~~.

Wildlife use riparian habitats for a variety of purposes. Although arroyo willow thickets themselves are sometimes difficult for some animals to penetrate, and the ephemeral waterways on-site are generally densely vegetated, some medium-sized mammals, such as the raccoon

(*Procyon lotor*) and bobcat (*Lynx rufus*), may use the riparian corridors within the thickets to move around the site. Woodrats (*Neotoma* sp.) build their nests in this habitat, while brush rabbits seek cover in these thickets. Amphibians and reptiles, such as the silvery legless lizard (*Anniella pulchra pulchra*), California red-legged frog, and Baja California treefrog, use this habitat for refuge. Arroyo willow thickets provide nesting, foraging, and wintering habitat for a variety of birds, including the Nuttall's woodpecker (*Picoides nuttallii*), western wood pewee (*Contopus sordidulus*), ash-throated flycatcher (*Myiarchus cinerascens*), yellow warbler (*Setophaga petechia*), bushtit (*Psaltriparus minimus*), wrentit, black-headed grosbeak (*Pheucticus melanocephalus*), common yellowthroat, and song sparrow (Lehman 2015). Additionally, one raptor nest was identified within arroyo willow thicket vegetation in the northeastern portion of the BSA.

4.1.3 Woodland, Windbreaks, and Tree Clusters

The tree-dominated physiognomic group on-site comprises approximately 30.28 acres~~, or 13.7 percent,~~ of the vegetation cover, and includes two general habitat types: woodlands and tree clusters. Within these two general habitat types on-site are three communities, which are described in the following section.

4.1.3.1 Woodlands

Woodlands are an area in which trees occur in open stands where their crowns are open and generally do not overlap (Sawyer et al. 2009). Coast live oak woodland alliance and coast live oak woodland-arroyo willow thickets association are the only vegetation communities within this general habitat type on-site. Due to their similarity, these vegetation communities are described together below.

The *Coast Live Oak Woodland Alliance* (CLOW) (MCV2 or NCL) includes coast live oak as the dominant or co-dominant species in the tree canopy. The *Coast Live Oak Woodland-Arroyo Willow Thicket Association* (CLOW-AWT) (MCV2 or NCL) includes coast live oak and arroyo willow as co-dominant species in the tree canopy. Both the coast live oak woodland alliance and coast live oak woodland-arroyo willow association have an open to continuous canopy less than 30 meters (98 feet) in height. The shrub layer is sparse to intermittent, and the herbaceous layer is sparse or grassy. Coast live oak woodland alliance and coast live oak woodland-arroyo willow association occur on alluvial terraces, canyon bottoms, streambanks, slopes, and flats (Sawyer et al. 2009).

Some species associated with the coast live oak woodland alliance and coast live oak woodland-arroyo willow association include bigleaf maple, coyotebrush, box elder (*Acer negundo*), southern

California black walnut (*Juglans californica*), Fremont cottonwood, arroyo willow, and California bay (*Umbellularia californica*). (Sawyer et al. 2009).

Coast live oak woodland vegetation occurs in several linear patches in the southwestern, central-southern, and southeastern portions of the BSA. Similarly, coast live oak woodland-arroyo willow association vegetation occurs in several linear patches in the southwestern, central-southern, and central-eastern portions of the BSA (*Figure 4*). These stands are located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources. On-site, this community is dominated by coast live oak and arroyo willow. There is intermittent cover of Pacific poison oak and coyotebrush. Coast live oak woodland alliance vegetation comprise 10.03 acres~~, or 4.5 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~on the site~~. Coast live oak woodland-arroyo willow thickets association vegetation comprises 15.17 acres~~, or 6.8 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~.

Wildlife use riparian habitats for a variety of purposes. Although coast live oak woodland alliance and coast live oak woodland-arroyo willow thickets association themselves are sometimes difficult for some animals to penetrate, and the ephemeral waterways on-site are generally densely vegetated, some medium-sized mammals, such as the raccoon (*Procyon lotor*) and bobcat (*Lynx rufus*), may use the riparian corridors within the thickets to move around the site. Woodrats (*Neotoma* sp.) build their nests in this habitat, while brush rabbits seek cover in these thickets. Amphibians and reptiles, such as the silvery legless lizard (*Anniella pulchra pulchra*), California red-legged frog, and Baja California treefrog, use this habitat for refuge. Use of coast live oak woodland by bird species is similar to that mentioned as using arroyo willow thickets, above. Additionally, one raptor nest was identified within coast live oak woodland vegetation in the central-southern portion of the BSA, and this community generally provides better raptor nesting habitat that arroyo willow thickets.

4.1.3.2 Tree Clusters

Tree clusters are single trees or small groups of trees, often of a single species. This general habitat type includes one community on-site: eucalyptus groves.

Eucalyptus Groves (EG) (MCV2 or NCL) contains Tasmanian bluegum (*Eucalyptus globulus*) as the dominant species. Eucalyptus groves has an intermittent to continuous canopy less than 50 meters (164 feet) in height with a sparse to intermittent shrub and herbaceous layer. Eucalyptus groves were planted as trees, groves, and windbreaks and have naturalized on uplands and stream courses (Sawyer et al. 2009).

Eucalyptus groves vegetation occurs in three patches in the central, central-northern, and central-eastern portions of the BSA. Two of these stands are located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources (*Figure 4*). On-site, this community is dominated by blue gum (*Eucalyptus globulus*) and red ironbark (*Eucalyptus sideroxylon*). Due to the allelopathic nature of eucalyptus trees, the shrub and herbaceous layers are largely absent. The eucalyptus grove vegetation comprises 5.08 acres~~, or 2.3 percent~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the BSA~~.

Wildlife use riparian habitats for a variety of purposes. Although coast live oak woodland alliance and coast live oak woodland-arroyo willow thickets association themselves are sometimes difficult for some animals to penetrate, and the ephemeral waterways on-site are generally densely vegetated, some medium-sized mammals, such as the raccoon (*Procyon lotor*) and bobcat (*Lynx rufus*), may use the riparian corridors within the thickets to move around the site. Woodrats (*Neotoma* sp.) build their nests in this habitat, while brush rabbits seek cover in these thickets. Amphibians and reptiles, such as the silvery legless lizard (*Anniella pulchra pulchra*), California red-legged frog, Baja California treefrog and the two-striped garter snake (*Thamnophis hammondii*), use this habitat for refuge. Use of coast live oak woodland by bird species is similar to that mentioned as using arroyo willow thickets, above. Additionally, one raptor nest was identified within coast live oak woodland vegetation in the central-southern portion of the BSA.

Common species of mice are among mammals that may be found in eucalyptus windbreaks. The openings at the edges of these rows of trees may also provide movement corridors for larger and medium-size mammals, such as cougars (*Puma concolor*), coyotes, bobcats and raccoons. Common reptiles, such as Coast Range fence lizards and San Diego gopher snakes (*Pituophis catenifer annectens*), may occur here. Some bird species, including Anna's hummingbirds (*Calypte anna*), Brewer's blackbirds (*Euphagus cyanocephalus*), American robin (*Turdus migratorius*), hooded oriole (*Icterus cucullatus*), and American crow (*Corvus brachyrhynchos*), may utilize eucalyptus groves and nearby habitats (Lehman 2015). Several raptors including re-tailed hawk and Cooper's hawk were observed perched in eucalyptus groves during the field surveys. Additionally, one raptor nest was identified within a eucalyptus grove patch in the central portion of the BSA.

4.1.4 Other Land Cover Types

Remaining areas outside of the BSA that contain vegetation and may provide habitat for wildlife are discussed below. These areas are considered to be developed; however, wildlife habitat features, including mature trees, are present.

4.1.4.1 Developed and Debris

Developed Land (DEV) *and Debris* are not recognized in MCV2 or NCL. These areas are characterized as currently built environments related to the Rancho Maria Golf Course (*Figure 4*). Golf course areas include an abundance of open space largely made up of turf grass and row trees. Although these areas are considered to be developed, wildlife may still utilize the trees as nesting and cover habitat and the turf grass as foraging and movement habitat. Developed land is considered to be outside of the BSA and, therefore, the acreage is not quantified in this report. Debris is made up primarily of landscape material including wood chips and tree trimmings and, similar to developed land, is considered to be outside of the BSA and, therefore, the acreage is not quantified in this report

Vegetation present within the developed land that provides habitat for wildlife species largely consists of tree species including blue gum, Aleppo pine (*Pinus halapensis*), Italian stone pine (*Pinus pinea*), Monterey pine (*Pinus radiata*) and shrub species including myoporum (*Myoporum laetum*). Herbaceous species cover is generally very low within the developed land due to regular maintenance associated with the golf course operations.

Wildlife using the developed land present adjacent to the BSA is expected to be similar to that mentioned as using the eucalyptus groves, above. Regular maintenance likely provides a deterrent to wildlife visitation and use; however, some wildlife species including pocket gopher, California ground squirrel (*Spermophilus beecheyi*), and several bird species are likely acclimated to some level of disturbance. In addition, irrigation of the golf course likely provides a water source, insect prey, and other food sources for common mammals, such as raccoons and striped skunks (*Mephitis mephitis*), and a variety of common wintering, migrating, and foraging bird species, such as killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), European starling, white-crowned sparrow (*Zonotrichia leucophrys*), and Brewer's blackbird. Medium to large-sized mammals such as mountain lions, coyotes, bobcats, and raccoons may use abandoned roads and the golf course itself as movement corridors within the developed land. A total of five raptor nests were identified in the tree rows within the developed land.

4.1.4.2 Fallow Agriculture

Fallow Agriculture is not recognized in MCV2 or NCL. These areas are characterized as areas that are regularly under agricultural cultivation and occur within the sewer line easement.

4.2 ~~Purple Needle Grass~~ Native Grassland Assessment

Dudek biologists Heather Moine, Amanda Shoemaker, and Andrea Dransfield conducted native grassland transect surveys in May 2016, as shown in *Table 1* and documented in *Appendix A*,

~~*Purple Needle Grass*~~ *Native Grassland Assessment Data Sheets*. A total of 686 polygons containing purple needlegrass and one polygon containing perennial rye grass grassland were observed. A total of 35 transects were sampled within 29 polygons containing purple needlegrass, as shown in *Table 3* and *Figure 5*.

The overall mean percent coverage of purple needlegrass was approximately 26 percent cover within the sampled stands. Only one of the 35 transects (Transect 21B) had an average percent coverage of below 10 percent purple needlegrass with the mean coverage at 8.15 percent. However, two polygon transects were recorded in polygon 21 and the average is 13.07 percent purple needlegrass. Of the remaining transects the lowest mean coverage was 11.28 percent purple needlegrass, while one transect reached up to 52.19 percent mean percent coverage of purple needlegrass, as shown in *Table 3*. The number of purple needlegrass "bunches" counted in the 1-meter quadrats within each stand ranged from 0 to 22, with an overall mean of 5.67 plants per square meter within the sampled polygons containing purple needlegrass on-site, as shown in *Table 3*.

Table 3
2016 ~~Purple Needle Grass~~ Native Grassland Assessment Results

Polygon Transect ID#	# Quads	Percent Coverage per Quad		No. of Plants per Quad		Area (square feet/acres)
		Mean	*Min/Max*	*Mean*	*Min/Max*	
1	3	28.51	18.56/35.71	7.67	1/11	253/0.01
2	6	25.64	3.75/40.82	6.83	1/13	1,331/0.03
3	4	39.21	0.00/60.00	4.00	0/7	1,112/0.03
4A	5	33.89	15.79/60.00	4.00	1/8	-/-
4B	5	30.75	0.00/56.12	5.80	0/13	3,347/0.08
5A	12	38.77	0.00/68.75	8.83	0/16	-/-
5B	9	14.87	0.00/33.33	2.44	0/8	-/-
5C	6	25.82	0.00/47.37	5.00	0/13	22,440/0.52
6	4	43.87	35.56/62.50	6.50	4/12	301/0.01
7	4	27.92	3.06/50.00	3.50	1/7	219/0.01
8	5	23.86	0.00/42.11	4.00	0/5	630/0.01
9	3	28.17	11.36/57.14	4.00	1/10	948/0.02
10	4	25.51	13.33/56.25	4.50	1/13	140/0.003
11	5	52.19	25.00/73.68	11.40	5/22	4,094/0.09
12	4	30.21	0.00/62.50	2.50	0/7	219/0.01
13	3	17.29	13.33/23.53	4.33	2/7	354/0.0
14	3	26.64	13.33/35.00	3.67	2/5	764/0.02
15A	5	19.32	5.00/37.50	3.40	1/7	-/-
15B	4	20.21	13.33/30.00	5.00	4/7	-/-
15C	4	34.86	20.00/44.44	4.75	2/10	3,458/0.08

Table 3
2016 ~~Purple Needle Grass~~ Native Grassland Assessment Results

Polygon Transect ID#	# Quads	Percent Coverage per Quad		No. of Plants per Quad		Area (square feet/acres)
		Mean	*Min/Max*	*Mean*	*Min/Max*	
16	5	32.68	20.00/41.18	5.60	2/9	367/0.01
17	4	45.48	15.79/75.00	11.00	8/14	2,045/0.05
18	4	18.83	10.00/30.00	7.75	4/14	346/0.01
19	3	25.26	12.63/42.11	4.67	2/7	558/0.01
20	5	24.53	6.00/45.00	8.00	3/11	3,792/0.09
21A	14	17.99	0.00/51.02	5.43	0/17	-/-
21B	10	8.15	0.00/26.32	3.20	0/8	33,720/0.77
22	6	13.23	10.00/21.05	6.50	3/11	5,206/0.12
23	6	15.99	15.00/21.05	8.67	5/19	5,811/0.13
24	5	15.50	10.53/21.05	4.00	3/6	1,880/0.04
25	3	21.24	16.67/23.53	10.00	7/12	993/0.02
26	5	23.50	14.29/42.11	6.40	3/11	3,306/0.08
27	7	33.87	15.00/80.00	7.86	2/13	6,095/0.14
28	5	13.00	0.00/31.58	2.80	0/6	9,475/0.22
29	8	11.28	8.00/15.00	4.50	2/8	2,504/0.06
Non-numbered Polygons	-	-	-	-	-	10,374/0.24
Data Summary	**188**	**25.94**	**0/80.00**	**5.67**	**0/22**	**126,085/2.89**

Per the County thresholds (County of Santa Barbara 2008), impacts to native grasslands that meet the 10 percent total relative coverage criteria are considered significant if greater than 0.25 acre of the patch are removed or severely disturbed. Additionally, purple needlegrass tends to be patchy therefore where a high density of small patches occurs in an area, the whole area should be delineated if native grassland species comprise 10 percent or more of the total relative cover.

A total of 68 polygons consisting of purple needlegrass were mapped, as shown in *Figure 5*. However, not all of these polygons meet the County thresholds to be considered purple needle grass grasslands (PNGG). County thresholds of ~~PNGG~~ native grasslands are met in two main areas of the site, particularly in the western central portion and southeastern corner of the site, as shown in *Table* 4, *Figure ~~6~~7*, and *Appendix A*. PNGG comprise a total of 1.86 acres in the BSA.

The western central PNGG patch is a total of 1.34 acres and is comprised of six separate polygons, (polygon transects 21-26) ranging from 13.07 to 23.50 percent cover of purple needlegrass. The sizes of polygon transects 21-26 are 0.77, 0.12, 0.13, 0.04, 0.02, and 0.08 acre, respectively. Polygon transect 21 meets the County threshold of 0.25 acre. Adjacent polygon transects 22-26,

which are each less than 0.25 acre, were in close proximity to polygon transect 21. These six polygon transects were combined into one PNGG patch as they are a high density of small patches and in accordance with County thresholds should be combined and considered one PNGG patch.

The southeastern PNGG patch is a total of 0.52 acre and is comprised of one polygon, polygon 5, with data collected at three polygon transects, 5A-5C, ranging from 14.87 to 38.77 percent cover of purple needlegrass. This PNGG patch is isolated from other nearby observations of purple needlegrass and therefore this a standalone PNGG patch.

The remaining 61 polygons consisting of purple needlegrass range in size from 0.003 acre to 0.22 acre. Polygon transect 28 is 0.22 acre, has an average of 13.00 percent cover of purple needlegrass, and is located in the western portion of the site, as shown in *Figure 5*. This polygon is isolated from other polygons consisting of purple needlegrass and the nearest polygon consisting of purple needlegrass is polygon transect 27 approximately 200 feet to the east. Between polygon transect 28 and polygon transect 27 the topography drops approximately 15 to 20 feet and contains coyote brush scrub interspersed with non-native grasses including ripgut grass and wild oat. Since the polygons are separated by a distance of 200 feet and the vegetation between the two polygons does not contain native plant species typical of a native grassland, the polygons are considered isolated and do not meet the County threshold of 0.25 acre.

Table 4
2016 Purple Needle Grass Grassland Polygons

Location	Comprised of Polygon Transect ID#	Percent Coverage per PNGG Transect		No. of Plants per PNGG Transect		Area (square feet/acres)
		Mean	*Min/Max*	*Mean*	*Min/Max*	
Western Central PNGG	21, 22, 23, 24, 25, 26	16.51	0.00/51.02	6.31	0/19	58,282/1.34
Southeastern PNGG	5A, 5B, 5C	26.49	0.00/68.75	5.42	0/16	22,440/0.52

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AERIAL SOURCE: NAIP 2014

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FIGURE 5

Native Grassland Assessment

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4.3 Protected Trees

The arborist tree survey results were overlaid on the project site CAD data to assess tree impacts and which trees will be removed based on the current project site plans. Additionally, it is assumed that all trees within the sewer line easement will be removed. A summary of proposed tree removals for the proposed project site are provided in *Table 5* and *Appendix C – Conceptual Landscape Design*. The detailed PleinAire Design Group arborist tree survey results which include tree identification number, species, DBH, root zone, disposition, canopy dimensions, and notes are provided in *Appendix D – PleinAire Design Group Tree Survey*. Dudek tree inventory results including tree identification number, species, DBH, and height are provided in *Attachment E* and the overall tree inventory area is displayed on *Figure 6*. Due to the tree canopy structure of the arroyo willow (*Salix lasiolepis*) trees within the sewer line easement, tree canopy radius was not recorded. The arroyo willow trees comprised a tree canopy of 90 to 95 percent cover with some branches extending outside of the sewer line easement. The arroyo willow habitat, including arroyo willow tree trunks, continued outside of the sewer line easement with tree canopies extend into the sewer line easement, but due to property access limitations only tree trunks within the sewer line easement were included in the tree inventory.

Table 5
Summary of Proposed Tree Removals ~~for The Neighborhoods of Willow Creek & Hidden Canyon Project~~

Common Name	Scientific Name	Native to Santa Barbara County	Tree ID	Number of Tree Removals		
				Willow Creek	*Hidden Canyon*	*Sewer Line Easement*
acacia	*Acacia* sp.	No	208*, 209*	2	0	0
arroyo willow	*Salix lasiolepis*	Yes	510, 514, 515, 601-664	0	3	64
coast live oak	*Quercus agrifolia*	Yes	147,148	2	0	0
coast redwood	*Sequoia sempervirens*	No	34	1	0	0
eucalyptus	*Eucalyptus* sp.	No	2, 9, 16, 18-20, 23-25, 139-146, 158, 503-505, 528-530, 547, 548	18	8	0
Mexican fan palm	*Washingtonia robusta*	No	-	0	0	0
Modesto ash	*Fraxinus velutina*	No	-	0	0	0
Monterey cypress	*Cupressus macrocarpa* = *Hesperocyparis macrocarpa*	No	-	0	0	0
Monterey Pine	*Pinus radiata*	No	10-15, 22, 37-39, 116, 149, 160, 161, 203*, 511, 512	15	2	0

Table 5
Summary of Proposed Tree Removals ~~for The Neighborhoods of Willow Creek & Hidden Canyon Project~~

Common Name	Scientific Name	Native to Santa Barbara County	Tree ID	Number of Tree Removals		
				Willow Creek	*Hidden Canyon*	*Sewer Line Easement*
myoporum	*Myoporum laetum*	No	3-8	6	0	0
olive tree	*Olea* sp.	No	-	0	0	0
			Totals	**47**	**13**	**64**

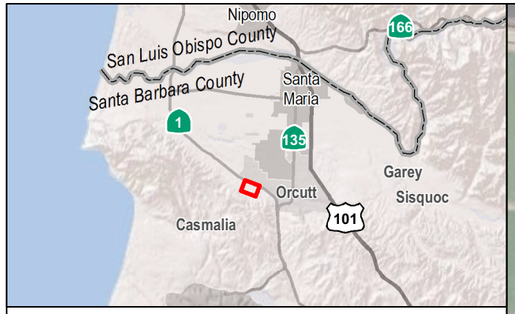
* Off-Site location at Willow Creek.

Based on the policies in the Conservation Element – Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (County of Santa Barbara 2009) and OCP (County of Santa Barbara 2004), Dudek performed an analysis of the all trees planned for removal to determine the quantities of protected trees that will be removed and will require mitigation. Protected oak trees are considered to be coast live oak trees six inches or greater in DBH and blue oak trees four inches or greater DBH, or coast live oak and blue oaks six feet or greater in height (County of Santa Barbara 2009). Native trees shall be considered established and protected if they are six feet in height (County of Santa Barbara 2004). Protected non-native trees are those with a DBH of 25 inches or greater. A summary of protected trees planned for removal for The Neighborhoods of Willow Creek and Hidden Canyon Project is provided in *Table 6*. Recommended mitigation is described in *Section 5*.

Table 6
Summary of Protected Proposed Tree Removals for The Neighborhoods of Willow Creek & Hidden Canyon Project

Common Name	Scientific Name	Native to Santa Barbara County	Tree ID	Number of Protected Tree Removals		
				Willow Creek	*Hidden Canyon*	*Sewer Line Easement*
acacia	*Acacia* sp.	No	208*	1	-	-
arroyo willow	*Salix lasiolepis*	Yes	510, 514, 515	-	3	64
Canary Island palm	*Phoenix canariensis*	No	204*, 206*, 207*	3	-	-
coast live oak	*Quercus agrifolia*	Yes	147,148	2	-	-
coast redwood	*Sequoia sempervirens*	No	-	0	-	-
eucalyptus	*Eucalyptus* sp.	No	16, 19, 23, 25, 140, 158	6	0	-
Monterey Pine	*Pinus radiata*	No	13, 15, 22, 37, 39, 203*, 511, 512	6	2	-
			Totals	**18**	**5**	**64**

* Off-Site location at Willow Creek.



Project Site

Tree Inventory Area

0 200 400 800 Feet

AERIAL SOURCE: ESRI World Imagery, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 6

Tree Inventory Area

Biological Resources Assessment Report for The Neighborhoods of Willow Creek and Hidden Canyon Project

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In addition to direct tree removal impacts, there is potential for impacts to the tree canopy and its root zone, defined as six feet from the edge of the tree canopy. Based on the project site CAD data, a summary of protected trees impacts to canopy drip lines to the outer extent of the root zone for The Neighborhoods of Willow Creek and Hidden Canyon Project is provided in *Table 7*.

Table 7
Summary of Protected Proposed Tree Impacts to Canopy and Root Zone ~~for The Neighborhoods of Willow Creek & Hidden Canyon Project~~

Common Name	Scientific Name	Native to Santa Barbara County	Tree ID	Number of Protected Tree Impacts to Canopy Drip Lines to the Outer Extent of the Root Zone		
				Willow Creek	*Hidden Canyon*	*Sewer Line Easement*[1]
eucalyptus	*Eucalyptus* sp.	No	1, 21, 202*, 544, 545	3	2	-
Modesto ash	*Fraxinus velutina*	No	135, 520, 524	1	2	-
Monterey Cypress	*Cupressus macrocarpa*	No	40	1	0	-
Monterey Pine	*Pinus radiata*	No	17, 26, 27, 181, 541	4	1	-
			Totals	**9**	**5**	**-**

Notes:
* Off-Site location at Willow Creek.
1 The arroyo willow habitat within the sewer line easement, including arroyo willow tree trunks, continued outside of the sewer line easement with tree canopies extend into the sewer line easement, but due to property access limitations only tree trunks within the sewer line easement were included in the tree inventory.

4.4 Hydrologic Feature Assessment

A formal wetland delineation was performed by PCR, Inc. in 2003 and LFR completed an informal confirmation of the PCR survey results in 2005. The Rancho Maria Estates Sensitive Species and Habitat Survey report completed by LFR Levine-Fricke (LFR 2005) noted that additional "one-parameter" wetland resources under the jurisdiction of the County of Santa Barbara were found in 2005, though a comprehensive survey for one-parameter wetlands was not completed at that time.

Dudek prepared a Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek & Hidden Canyon in June 2016, revised in December 2018 (Dudek 2018).~~A formal wetland delineation/jurisdictional determination was not completed within the BSA during the 2015-2016 surveys; however, the field surveys included the assessment and mapping of potential hydrologic features within the BSA~~. *Figure 4* provides the results of the ~~potential~~ hydrologic features field survey and includes relevant National Hydrography Dataset (NHD) and National Wetlands Inventory (NWI) data. The prior wetland delineation review completed by LFR took place in 2005, following an above average rain year. Rainfall in 2015-2016 was below average, and potential jurisdictional waters were not inundated to the same level as encountered in 2005.

The NHD data within the BSA includes intermittent streams and perennial lakes/ponds. The NWI data within the BSA consists of three palustrine wetland types: scrub-shrub-seasonally flooded, emergent-temporarily flooded, and forested-temporarily flooded. Several of these NHD and NWI features are located within the project site boundary (*Figure 4*).

Several potential hydrologic features were identified during the field survey based primarily on the presence of ponded water or saturated conditions. Presence of hydrophytic vegetation was also used as an identification indicator; however, due to previous and on-going disturbances to the property, including past agricultural operations and current mowing activities, hydrophytic vegetation is an unreliable metric for determining the extent of hydrologic features. Soils were not evaluated as part of the field survey.

4.5 Special-Status Plant Species

For the purpose of this Biological Assessment, special-status plant species are those that are designated as either rare, threatened, or endangered (or candidate) by CDFW or the USFWS and are protected under either the California Endangered Species Act (CESA) (Fish & Game Code, § 2050 et seq.) or federally Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.), or meet the CEQA definition for endangered, rare, or threatened (Cal. Code Regs., tit. 14, § 15380(b),(d)). Special-status plant species also include those that are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes plants on the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2016c) as well as species with a California Rare Plant Ranking (CRPR) of 1, 2, or 4 in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2016). Plants included on the CNPS Inventory are classified as follows:

- List 1A: plants presumed extinct in California;
- List 1B: plants rare, threatened, or endangered in California and elsewhere;
- List 2: plants rare, threatened, or endangered in California, but more common elsewhere; and
- List 4: plants of limited distribution – a watch list.

Previous field surveys documented two special-status plant species within the BSA: Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*; CNPS CRPR 1B.1) and Kellogg's horkelia (*Horkelia cuneata* var. *sericea*; CNPS CRPR 1B.1) (LFR 2005). Dudek visited the Kellogg's horkelia population previously documented and keyed the species to a commonly occurring species (see *Section 4.4.3*). One special-status plant species was potentially observed, black-flowered figwort (*Scrophularia atrata*; CNPS CRPR 1B.2), but was not blooming or identifiable and therefore was documented as *Scrophularia* sp.

The CDFW CNDDB query returned 37 special-status plant species that have been documented within the nine quadrangles associated with the project site. Based on Dudek's habitat suitability analysis, 21 of the special-status plant species had potential to occur within the project site. Of these, one special-status plant species was observed on the project site, one has moderate potential to occur, and 19 have a low potential to occur. Special-status plant species documented within the nine associated quadrangles are further described in *Table ~~5~~8*.

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Agrostis hooveri	Hoover's bent grass	None/None	1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland/usually sandy/perennial herb/Apr-Jul/ 20-2,001 feet	Low potential to occur. Valley and foothill grassland present but recently disturbed by cattle grazing and cropland production. Not observed during 2016 floristic surveys. Zero population occurrences are documented within the last 20 years within the nine associated quadrangles, and the nearest occurrence was documented 2.6 miles from the site in 1987 (CDFW 2016a).
Ancistrocarphus keilii	Santa Ynez groundstar	None/None	1B.1	Chaparral, cismontane woodland/sandy/ annual herb/Mar-Apr/ 131-427 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 10.0 miles from the site in 1995 (CDFW 2016a).
Aphanisma blitoides	aphanisma	None/None	1B.2	Sandy or gravelly. coastal bluff scrub, coastal dunes, coastal scrub/sandy/ annual herb/ Mar-Jun/ 3-1,001 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 7.1 miles from the site in 1998 (CDFW 2016a).
Arctostaphylos crustacea ssp. *eastwoodiana*	Eastwood's brittle-leaf manzanita	None/None	1B.1	Chaparral (maritime, sandy)/perennial evergreen shrub/ Mar/ 295-1,198 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Arctostaphylos purissima	La Purisima manzanita	None/None	1B.1	Chaparral(sandy), coastal scrub/ perennial evergreen shrub/Nov-May/ 197-1,280 feet	Low potential to occur. Suitable habitat is present on site within the coastal scrub. Not observed during 2016 floristic surveys. The nearest occurrence was documented 3.5 miles from the site in 1989 (CDFW 2016a).
Arctostaphylos rudis	sand mesa manzanita	None/None	1B.2	Chaparral (maritime), coastal scrub/sandy/perennial evergreen shrub/ Nov-Feb/ 82-1,056 feet	Low potential to occur. Suitable habitat is present on site within the coastal scrub. Not observed during 2016 floristic surveys. The nearest occurrence was documented 2.9 miles from the site in 1989 (CDFW 2016a).
Astragalus didymocarpus var. *milesianus*	Miles' milk-vetch	None/None	1B.2	Coastal scrub (clay)/annual herb/ Mar-Jun/ 66-295 feet	Not expected to occur. No suitable clay habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 9.9 miles from the site in 1935 (CDFW 2016a).
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None	1B.2	Coastal bluff scrub, coastal scrub/alkaline/ annual herb/ Apr-Oct/ 33-656 feet	Low potential to occur. Suitable habitat is present on site within the coastal scrub. Not observed during 2016 floristic surveys. The nearest occurrence was documented 6.9 miles from the site in 1965 (CDFW 2016a).
Calycadenia villosa	dwarf calycadenia	None/None	1B.1	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland/rocky, fine soils/ annual herb/ May-Oct/787-4,429 feet	Not expected to occur. The site is outside of the species' known elevation range. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chenopodium littoreum	coastal goosefoot	None/None	1B.2	Coastal dunes/annual herb/ Apr-Aug/33-98 feet	Not expected to occur. The site is outside of the species' known elevation range, and no suitable habitat is present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 5.5 miles from the site in 1996 (CDFW 2016a).
Chorizanthe rectispina	straight-awned spineflower	None/None	1B.3	Chaparral, cismontane woodland, coastal scrub/annual herb/Apr-Jul/ 279-3,396 feet	**Moderate** potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 3.1 miles from the site in 1991 (CDFW 2016a).
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	None/None	2B.1	Marshes and swamps, coastal, fresh or brackish water/ perennial herb/Jul-Sep/0-656 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 7.6 miles from the site in 2008 (CDFW 2016a).
Cirsium rhothophilum	Surf thistle	None/ST	1B.2	Coastal bluff scrub, coastal dunes/ perennial herb/Apr-Jun/ 10-197 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 6.8 miles from the site in 1996 (CDFW 2016a).
Cirsium scariosum var. *loncholepis*	La Graciosa thistle	FE/ST	1B.1	Cismontane woodland, coastal dunes, coastal scrub, marshes and swamps(brackish), valley and foothill grassland/mesic, sandy/perennial herb/ May-Aug/ 13-722 feet	Low potential to occur. Suitable cismontane woodland, coastal scrub, and valley and foothill grassland present. Not observed during 2016 floristic surveys. One population occurrence was documented within the last 20 years within the nine associated quadrangles and the nearest occurrence was documented 0.6 miles from the site in 1906 (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Cladium californicum	California sawgrass	None/None	2B.2	Meadows and seeps, marshes and swamps, alkaline or freshwater/perennial rhizomatous herb/Jun-Sep/ 197-5,249 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 5.4 miles from the site in 2005 (CDFW 2016a).
Cordylanthus rigidus ssp. *littoralis*	seaside bird's-beak	None/SE	1B.1	Closed-cone coniferous forest, chaparral(maritime), cismontane woodland, coastal dunes, coastal scrub/sandy, often disturbed sites/annual herb (hemiparasitic)/Apr-Oct/ 0-1,690 feet	Low potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 7.3 miles from the site in 1995 (CDFW 2016a).
Deinandra increscens ssp. *villosa*	Gaviota tarplant	FE/SE	1B.1	Coastal bluff scrub, coastal scrub, valley and foothill grassland/annual herb/ May-Oct/66-1,411 feet	Low potential to occur. Suitable coastal scrub and valley and foothill grassland present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 0.1 mile from the site in 1962. The next nearest occurrence is document 4.6 miles from the site in 2002 (CDFW 2016a).
Delphinium parryi ssp. *blochmaniae*	dune larkspur	None/None	1B.2	Chaparral(maritime), coastal dunes/ perennial herb/Apr-Jun/ 0-656 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 2.9 miles from the site in 1935 (CDFW 2016a).
Dithyrea maritima	beach spectaclepod	None ST	1B.1	Coastal dunes, coastal scrub(sandy)/perennial rhizomatous herb/Mar-May/ 10-164 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 5.4 miles from the site in 1906 (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None	1B.1	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland/rocky, often clay or serpentinite/perennial herb/ Apr-Jun/16-1,476 feet	**Observed** during 2016 floristic surveys within the southwest portion of the site. No development is proposed within this area.
Erigeron blochmaniae	Blochman's leafy daisy	None/None	1B.2	Coastal dunes, coastal scrub/ perennial rhizomatous herb/ Jun-Aug/10-148 feet	Not expected to occur. The site is outside of the species' known elevation range. Not observed during 2016 floristic surveys. The nearest occurrence was documented 3.4 miles from the site in 1991 (CDFW 2016a).
Eriodictyon capitatum	Lompoc yerba santa	FE/SR	1B.2	Closed-cone coniferous forest, chaparral (maritime)/sandy/ perennial evergreen shrub/May-Aug/ 131-2,953 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 4.1 miles from the site in 1993 (CDFW 2016a).
Horkelia cuneata var. *puberula*	mesa horkelia	None/None	1B.1	Chaparral(maritime), cismontane woodland, coastal scrub/sandy or gravelly/ perennial herb/Feb-Jul (Sep)/ 230-2,657 feet	Low potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 4.4 miles from the site in 2013 (CDFW 2016a).
Horkelia cuneata var. *sericea*	Kellogg's horkelia	None/None	1B.1	Closed-cone coniferous forest, chaparral(maritime), coastal dunes, coastal scrub/sandy or gravelly, openings/perennial herb/Apr-Sep/ 33-656 feet	Low potential to occur. Suitable coastal scrub habitat present. During 2004 and 2005 surveys, LFR documented Kellogg's horkelia at the site. However, Dudek visited the Kellogg's horkelia population previously documented and keyed the species to wedgeleaf horkelia (*Horkelia cuneata* var. *cuneata*). The nearest occurrence was documented 4.0 miles from the site in 1909 (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None	1B.1	Marshes and swamps (coastal salt), playas, vernal pools/ annual herb/Feb-Jun/ 3-4,003 feet	Not expected to occur. No suitable vegetation present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).
Layia carnosa	beach layia	FE/SE	1B.1	Coastal dunes, coastal scrub (sandy)/annual herb/Mar-Jul/ 0-197 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 8.9 miles from the site in 2012 (CDFW 2016a).
Layia heterotricha	pale-yellow layia	None/None	1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland/alkaline or clay/ annual herb/Mar-Jun/984-5,594 feet	Not expected to occur. The site is outside of the species' known elevation range. Not observed during 2016 floristic surveys. The nearest occurrence was documented 6.7 miles from the site in 1951 (CDFW 2016a).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None	4.3	Chaparral, coastal scrub/annual herb/Jan-Jul/3-2,904 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).
Lonicera subspicata var. *subspicata*	Santa Barbara honeysuckle	None/None	1B.2	Chaparral, cismontane woodland, coastal scrub/ perennial evergreen shrub/May-Aug (Dec), (Feb)/33-3,281 feet	Low potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).
Mimulus fremontii var. *vandenbergensis*	Vandenberg monkeyflower	FE/None	1B.1	Chaparral Burton Mesa, cismontane woodland, coastal dunes, central dune scrub/sandy; often disturbed areas/ annual herb/Apr-Jun/ 197-394 feet	Not expected to occur. No suitable vegetation present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 9.6 miles from the site in 2012 (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Monardella sinuata ssp. *sinuata*	southern curly-leaved monardella	None/None	1B.2	Chaparral, cismontane woodland, coastal dunes, coastal scrub (openings)/Sandy/annual herb/Apr-Sep/0-984 feet	Low potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 3.7 miles from the site in 1991 (CDFW 2016a).
Monardella undulata ssp. *crispa*	crisp monardella	None/None	1B.2	Coastal dunes, coastal scrub/ perennial rhizomatous herb/ Apr-Aug (Dec)/33-394 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 5.2 miles from the site in 1982 (CDFW 2016a).
Monardella undulata ssp. *undulata*	San Luis Obispo monardella	None/None	1B.2	Coastal dunes, coastal scrub(sandy)/perennial rhizomatous herb/May-Sep/ 33-656 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 5.6 miles from the site in 1981 (CDFW 2016a).
Nasturtium gambelii	Gambel's water cress	FE/ST	1B.1	Marshes and swamps (freshwater or brackish)/ perennial rhizomatous herb/ Apr-Oct/ 16-1,083 feet	Not expected to occur. No suitable habitat present. Not observed during 2016 floristic surveys. The nearest occurrence was documented 6.2 miles from the site in 1980 (CDFW 2016a).
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None	4.2	Coastal bluff scrub, coastal dunes, coastal scrub/sandy/ perennial herb (parasitic)/Apr-Oct/ 10-1,001 feet	Low potential to occur. Suitable coastal scrub habitat present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).

Table 8
Special-Status Plant Species Potentially Occurring in the Biological Survey Area

Scientific Name	Common Name	Federal/State Status	CNPS CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Scrophularia atrata	black-flowered figwort	None/None	1B.2	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub/ perennial herb/Mar-Jul/ 33-1,640 feet	Low potential to occur. Suitable coastal scrub habitat present. During 2004 and 2005 surveys, LFR documented a *Scrophularia* sp. population within the southwest portion of the site. However, the plants were not blooming during the surveys and identification to species level was not possible. During 2016 surveys, Dudek visited the *Scrophularia* sp. population previously documented; however, no *Scrophularia* sp. were observed. The nearest occurrence was documented 3.0 miles from the site in 1991 (CDFW 2016a).
Senecio aphanactis	chaparral ragwort	None/None	2B.2	Chaparral, cismontane woodland, coastal scrub/sometimes alkaline/ annual herb/Jan-Apr/49-2,625 feet	Low potential to occur. Suitable cismontane woodland and coastal scrub habitat present. Not observed during 2016 floristic surveys. Not documented within 10 miles of the site (CDFW 2016a).

Legend:
FE = Federally listed as endangered
FT = Federally listed as threatened
SE = State-listed as endangered
SR = State-listed as rare
ST = State-listed as threatened
CRPR = California Rare Plant Rank
1A (formerly List 1A): Plants Presumed Extinct in California
1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere
2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 (formerly List 3): Plants About Which We Need More Information - A Review List
4 (formerly List 4): Plants of Limited Distribution - A Watch List
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2-Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Dudek performed floristic surveys during April and June 2016 and observed a total of 150 plant species, of which 81 (54 percent) are native to the region and 69 (46 percent) are non-native. One

population of Blochman's dudleya was observed within the southwest corner of the BSA, within the same area previously documented and is shown in *Appendix B, Photographic Documentation*. The cumulative list of plant species identified during 2016 surveys is provided in *Appendix ~~C~~ E, Cumulative List of Plant Species*.

The following sections include discussions of the special-status plant species observed on the site during 2016 surveys, the special-status plant species previously documented on the site, and the special-status plant species that have a moderate or high potential to occur.

4.5.1 Black-flowered figwort

Black-flowered figwort (*Scrophularia atrata*) is a CNPS CRPR 1B.2 species that occurs mostly on the coast of southern California in Santa Barbara County and San Luis Obispo County. It is a perennial herb that occurs in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, and riparian scrub habitats from 33 to 1,640 feet amsl. The blooming period of black-flowered figwort is from March to July.

During 2004 and 2005 surveys, LFR documented a *Scrophularia* sp. population within the southwest portion of the site. However, the plants were not blooming during the surveys and identification to species level was not possible (LFR 2005). During 2016 surveys, Dudek visited the *Scrophularia* sp. population previously documented; however, no *Scrophularia* sp. were observed. No other *Scrophularia* sp. individuals were observed during the 2016 surveys. The nearest occurrence was documented 3.0 miles from the site in 1991 (CDFW 2016a).

4.5.2 Blochman's dudleya

Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) is a CNPS CRPR 1B.1 species that occurs in mostly coastal counties from San Diego north to San Luis Obispo. This perennial herb is found in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland in rocky, often clay or serpentinite soils from 16 to 1,476 feet amsl. It blooms from April to June.

Previous floristic surveys detected this species on a rocky ridgeline within the southwest portion of the site (LFR 2005). Surveys in 2016 documented Blochman's dudleya in the same area, as shown in *Figure ~~6~~ 7* and *Appendix B.*

4.5.3 Kellogg's horkelia

Kellogg's horkelia (*Horkelia cuneata* var. *sericea*) is a CNPS CRPR 1B.1 species that occurs in coastal counties from Santa Barbara north to Marin. This perennial herb is found in closed-cone coniferous forest, chaparral (maritime), coastal dunes, and coastal scrub habitats in sandy or gravelly openings from 33 to 656 feet amsl. It blooms from April to September.

During 2004 and 2005 surveys, LFR documented Kellogg's horkelia at the site (LFR 2005). However, Dudek visited the Kellogg's horkelia population previously documented and keyed the species to wedgeleaf horkelia (*Horkelia cuneata* var. *cuneata*), a commonly occurring species. Although suitable coastal scrub habitat is present Dudek has assessed that Kellogg's horkelia has low potential to occur. One population of Kellogg's horkelia was documented within the nine associated quadrangles at a distance of 4.0 miles from the site in 1909 (CDFW 2016a).

4.5.4 Straight-awned spineflower

Straight-awned spineflower (*Chorizanthe rectispina*) is a CNPS CRPR 1B.3 species that occurs in coastal counties from Santa Barbara north to Monterey. This annual herb is found in chaparral, cismontane woodland, and coastal scrub habitats from 279 to 3,396 feet above mean sea level. It blooms from April to July.

This species was not documented during previous surveys nor was it documented during 2016 surveys. Straight-awned spineflower has a moderate potential to occur as the site contains suitable cismontane woodland and coastal scrub habitat. One population of straight-awned spineflower was documented within the nine associated quadrangles at a distance of 3.1 miles from the site in 1991 (CDFW 2016a).

4.6 Special-Status Wildlife Species

For the purpose of this Biological Assessment, special-status wildlife species are those that are designated as either rare, threatened, or endangered (or candidate) by CDFW or the USFWS and are protected under either the California Endangered Species Act (CESA) (Fish & Game Code, § 2050 et seq.) or federally Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.), or meet the CEQA definition for endangered, rare, or threatened (Cal. Code Regs., tit. 14, § 15380(b),(d)). Special-status wildlife species also include those that are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes wildlife on the CDFW *Special Animals List* (CDFW 2016b) that are determined by CDFW to be a Species of Special Concern (SSC).

As previously stated, reconnaissance biological surveys were conducted on the project site in 2015-2016 to document the presence or potential presence of special-status species and other sensitive biological resources known to occur on or in the vicinity of the project site. Dudek compiled a list of special-status wildlife species with potential to occur in the area using CNDDB and the USFWS Information for Planning and Conservation (IPAC) tool. *Table ~~6~~ 9* lists the special-status wildlife species with the potential to occur based upon vegetation and elevation that are recorded within the Orcutt USGS quadrangle, where the project is located, and the surrounding eight USGS quadrangles. The cumulative list of wildlife species identified during 2016 surveys is provided in *Appendix ~~D~~G*, *Cumulative List of Wildlife Species*.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
Invertebrates				
vernal pool fairy shrimp	*Branchinecta lynchi*	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	**Moderate** potential to occur in the biological survey area. Suitable aquatic habitat is present.
El Segundo blue butterfly	*Euphilotes battoides allyni*	FE/None	Coastal dunes. Requires dune buckwheat (*Eriogonum parviflorum*) as its food plant.	Not expected to occur in the biological survey area. No suitable habitat or food plants present on the project site.
Monarch butterfly	*Danaus plexippus*	None/None	Wind-protected tree groves with nectar sources and nearby water sources.	**Present**. The Rancho Maria Golf Course is a known autumnal site for this species (County 2004). Suitable eucalyptus grove roosting habitat is present in the biological survey area.
Fish				
arroyo chub	*Gila orcuttii*	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters; substrates of sand or mud.	Absent within the biological survey area. No suitable aquatic habitat present.
southern steelhead - southern California DPS	*Oncorhynchus mykiss irideus*	FE/SSC	Clean, clear, cool. well-oxygenated streams. Needs relatively deep pools in migration and gravelly substrate to spawn.	Absent within the biological survey area. No suitable aquatic habitat present. The Santa Maria River is designated Critical Habitat for the DPS.
tidewater goby	*Eucyclogobius newberryi*	FE/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County North to the mouth of the Smith River.	Absent within the biological survey area. No suitable aquatic habitat present. Occupied aquatic habitat and designated Critical Habitat present in the Santa Maria River Estuary.
unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*	FE/SE, FP	Slow-moving and backwater areas.	Absent within the biological survey area. No suitable aquatic habitat present.
Amphibians				
arroyo toad	*Anaxyrus californicus*	FE/SSC	Often found near rivers with sandy banks, willows, cottonwoods, and sycamores in valley-foothill and desert riparian habitats. Found in loose gravelly areas of streams in drier portions of its range.	Not expected to occur in the biological survey area. No suitable aquatic habitat is present.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
California red-legged frog	*Rana draytonii*	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands.	**Present** (LFR 2004). Suitable breeding (i.e., aquatic) habitat is present within and adjacent to the biological survey area. Suitable upland habitat is also present for migration/dispersal. Designated Critical Habitat is located to the east, west, and south.
California tiger salamander (Santa Barbara DPS)	*Ambystoma californiense*	FE/ST, SSC	Annual grassland, valley-foothill hardwood, and valley-foothill riparian; vernal pools, other ephemeral pools, uncommonly along stream courses and man-made pools if predatory fishes are absent.	**Present** (VJS 2005). Suitable breeding (i.e., aquatic) habitat is present within and adjacent to the biological survey area. Suitable upland habitat is also present for aestivation, migration, and dispersal.
western spadefoot	*Spea hammondii*	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least three weeks in chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture.	**High** potential to occur in the biological survey area. Breeding (i.e., aquatic) and upland habitat is present within and in the immediate vicinity of the biological survey area.
Reptiles				
western pond turtle	*Actinemys marmorata*	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter.	**Moderate** potential to occur in the biological survey area. No in-stream pools were present during the 2016 surveys; however, suitable perennial ponds are present in the immediate vicinity of the biological survey area. Suitable upland habitat is present in the biological survey area and in the immediate vicinity.
silvery legless lizard	*Anniella pulchra pulchra*	None/ SSC	Stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils.	**Moderate** potential to occur in the biological survey area. Suitable habitat is present in the ephemeral waterways and riparian habitat within the biological survey area, as well as on lands immediately adjacent to the biological survey area.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
Blainville's horned lizard	*Phrynosoma blainvillii*	None/SSC	Open areas of sandy soil in valleys, foothills and semi-arid mountains, including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland.	**Moderate** potential to occur in the biological survey area. Suitable sandy soils are present and preferred prey (harvester ants) were observed during the biological field surveys in 2016.
coast patch-nosed snake	*Salvadora hexalepis virgultea*	None/SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	**Moderate** potential to occur in the biological survey area. Suitable habitat is present.
two-striped gartersnake	*Thamnophis hammondii*	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools.	**Moderate** potential to occur in riparian habitat within the biological survey area.
Birds				
tricolored blackbird	*Agelaius tricolor*	BCC/SC, SSC	Emergent wetland vegetation, especially cattails and tules; also in trees and shrubs. Roosts in large flocks in emergent wetland or in trees. Nests in dense cattails or tules; also nests in thickets of willow, blackberry, wild rose, or tall herbs.	**Moderate** potential to forage in the biological survey area. A small amount of emergent vegetation (i.e., cattails) and dense willow thickets are present and there is moderate potential for this species to nest in the biological survey area.
grasshopper sparrow	*Ammodramus savannarum (nesting)*	None/SSC	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	**Moderate** potential to nest and forage in the biological survey area. Grassland habitat is available and the species is known to occur in the region.
golden eagle	*Aquila chrysaetos (nesting & wintering)*	BCC/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	**Moderate** potential to forage in the biological survey area. Not expected to nest in the biological survey area; no potential nests identified during field surveys.
burrowing owl	*Athene cunicularia* (breeding sites & some wintering sites)	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly where ground squirrel burrows are present.	**Moderate** potential to occur within the biological survey area. No suitable burrows observed within the project site during 2016 surveys. Moderate potential to occur/forage in the biological survey area.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
Swainson's hawk	*Buteo swainsoni* (nesting)	BCC/ST	Nests in open woodland and savanna, riparian and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	Not expected to nest in the biological survey area. Species has not been known to nest in the region since the late 1800's. Moderate potential for a migrant to pass through the biological survey area.
western snowy plover	*Charadrius nivosus nivosus* (nesting)	FT, BCC/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds.	Not expected to occur in the biological survey area. No suitable nesting or foraging habitat present.
white-tailed kite	*Elanus leucurus*	None/FP, WL	Inhabits herbaceous and open stages of most habitats common in cismontane in California; nests are placed near top of dense oak, willow, or other tree stand; usually 20–100 feet above ground; nest located near open foraging area.	**Moderate** potential to nest in the biological survey area.
southwestern willow flycatcher	*Empidonax traillii extimus*	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration.	Not expected to occur in the biological survey area. Potential for the species to migrate through the area; however, suitable nesting habitat is absent.
American peregrine falcon	*Falco peregrinus anatum* (nesting)	FDL/SDL, FP	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present.	Not expected to nest in the biological survey area. Moderate potential for the species to forage within and in the vicinity of the biological survey area.
California condor	*Gymnogyps californianus*	FE/SE	Traditional roosting sites are ledges or cavities on cliffs. Also uses old-growth Douglas-fir, ponderosa pine, and snags, in undisturbed areas.	Not expected to occur in the biological survey area. Very low potential to occur/forage on ranchland adjacent to the biological survey area. No suitable nesting habitat present in the biological survey area.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
yellow-breasted chat	*Icteria virens*	None/SSC	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	**Moderate** potential to nest in riparian habitat within the biological survey area.
loggerhead shrike	*Lanius ludovicianus (nesting)*	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	**Moderate** potential to forage within the biological survey area. Low potential to nest within the biological survey area.
yellow warbler	*Setophaga petechia*	BCC/SSC	Usually found in riparian deciduous habitats in summer: cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland.	**Moderate** potential to nest in riparian habitat within the biological survey area.
California least tern	*Sternula antillarum browni* (nesting colony)	FE/CE, FP	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flat.	Not expected to occur in the biological survey area. No suitable nesting or foraging habitat present.
least Bell's vireo	*Vireo bellii pusillus*	FE/SE	Inhabits low, dense riparian growth along water or along dry parts of intermittent streams.	Not expected to occur in the biological survey area. Moderate potential for the species to migrate through the area; however, low potential to breed in the available riparian habitat. No recent records of this species are present in the vicinity of Santa Maria/Orcutt.
Mammals				
pallid bat	*Antrozous pallidus*	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees.	**Moderate** potential to roost and forage in the biological survey area. Suitable habitat is present in the canyon formations associated with the ephemeral waterways.
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SC, SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, also man-made structures and tunnels.	**Moderate** potential to forage in the biological survey area. No suitable roosting habitat in the biological survey area.

Table 9
Special-Status Wildlife Species Potentially Occurring in the Biological Survey Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
western red bat	*Lasiurus blossevillii*	None/SSC	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy.	**Moderate** potential to forage and roost in the biological survey area. Suitable habitat is present in the canyon formations associated with the ephemeral waterways.
San Diego desert woodrat	*Neotoma lepida intermedia*	None/SSC	Houses are constructed with twigs, sticks, cactus parts, rocks, depending on availability of building materials. The house usually is built against a rock crevice, at the base of creosote or cactus, or in the lower branches of trees. Rock crevices appear preferred where available.	**Moderate** potential to occur within the biological survey area. Suitable habitat is present in the canyon formations associated with the ephemeral waterways.
American badger	*Taxidea taxus*	None/SSC	Dry, open, treeless areas; grasslands; coastal scrub; agriculture; pastures, especially with friable soils.	**Moderate** potential to occur in the biological survey area and in the immediate vicinity. However, no suitable burrows observed during 2016 surveys.

Status Key:

Federal
FE: Federally Endangered
FT: Federally Threatened
FSC: Federal Species of Concern
MBTA: Migratory Bird Treaty Act
BCC: Bird of Conservation Concern
FDL: Federally De-Listed

State
SE: California Endangered
ST: California Threatened
FP: Fully Protected
SC: State Candidate
SSC: Species of Special Concern
SDL: State De-Listed

For reasons discussed in *Table 6*, many of the special-status wildlife species that are known to occur in the region are not expected to reside on the project site as resident, nesting, or wintering species. Many are avian species that may occasionally fly over or forage over the site. These species are not expected to be present on the project site, and they are not further discussed in this document.

The wildlife species addressed in *Section 4.5.1* through *Section 4.5.3* are known to occur within the BSA. Additional wildlife species that have potential to occupy the site as a resident, nesting, or wintering species based on the presence of suitable habitat are discussed in *Section 4.5.4*.

4.6.1 California Tiger Salamander

The California tiger salamander (CTS) is a large, stocky amphibian that spends much of its life underground. It occurs only in California's Central Valley grasslands and the oak savannah plant communities of California's Central Valley, the Sierra Nevada foothills, the Coast Ranges, and the San Francisco Bay region, below approximately 457 m (1,500 ft.) (Bolster 2010). The California tiger salamander range is centered in the Central Valley and Coast Ranges from Tulare to San Luis Obispo counties in the south, northward to Sacramento and Solano counties, with disjunct populations in Santa Barbara and Sonoma counties (Bolster 2010). The Santa Barbara DPS historically inhabited seasonal ponds and associated grassland, oak savannah, and coastal scrub vegetation in the Santa Maria, Los Alamos, and Santa Rita valleys in the northwestern portion of Santa Barbara County. Approximately 60 ponds are known to support extant CTS breeding habitat across six metapopulations.

The project site is located within the West Santa Maria/Orcutt Metapopulation Area as defined in the Draft Recovery Plan for CTS (USFWS 2015a). Critical habitat designated in the Draft Recovery Plan (Critical Habitat Unit 1) for this metapopulation includes 15 known breeding ponds. No critical habitat for this species is present within the BSA or in Key Site 21. The CNDDB includes several occurrences of the CTS, Santa Barbara distinct population segment (DPS), federally listed as endangered (FE) and state listed as threatened (ST), within the project site. Additionally, previous focused surveys for this species found a total of 10 CTS individuals within the biological survey area (*Appendix H*).

~~The project site is located west of the Western Santa Maria/ Orcutt Metapopulation Area within the potential distribution of CTS mapped in Santa Barbara County (USFWS 2015a).~~

The CTS require fishless, seasonal, or semi-permanent wetlands to reproduce, with surrounding terrestrial migration and dispersal habitat that contains active ground squirrel or gopher burrows to serve as underground retreats (Bolster 2010). California tiger salamanders begin breeding somewhere between two and five years of age, with approximately half of adults surviving to breed more than once, although the majority of females do not survive to breed a second time (Bolster 2010).

Prior focused surveys for CTS found the species throughout the northern portion of the BSA. These previous focused surveys consisted of a drift fence study conducted in the winter of 2004-2005 within the project site. A total of 11,000 feet of drift fence and 880 pitfall traps were installed in association with this survey. Results of this survey included the detection of 10 CTS in the pitfall traps (*Appendix H* ~~*A*~~). Rainfall conditions in 2004-2005 were well above average for the region and habitat conditions for the species were optimal during this period. It is noted in this survey report that protocol-level aquatic surveys were not conducted for this species since suitable aquatic

habitat was located outside of the property boundary. However, a separate survey completed in April 2004 included an aquatic survey of the potential breeding pond in the northwestern portion of ~~the BSA~~ Key Site 21. Three separate visits were conducted, and no CTS or California red-legged frog (CRLF) larvae were found in this potential breeding pond (LFR 2004).

Surveys completed by Dudek in 2015-2016 included a characterization of available aquatic and upland habitat, an assessment of changes to the site and available habitat since the previous surveys, and reconnaissance searches for CTS during and immediately following rain events. Overall, the available aquatic habitat appears to be largely unchanged, though rainfall totals in 2015-2016 did not produce ideal ponding conditions for CTS breeding. Rainfall in 2015-2016 totaled approximately 9.23 inches, and average rainfall for the region is approximately 13.0 inches (WRCC 2016). Potential breeding ponds were assessed following significant rain events in 2016, and no CTS or CRLF larvae were observed (also see *Appendix B*). Ponding duration appeared to be short due to the lack of aquatic invertebrates observed during the potential breeding pond assessments. Results of reconnaissance surveys following rain events were negative for CTS individuals. Upland habitat appears to be largely unchanged and still provides suitable movement and dispersal habitat for the CTS. The northeastern portion of the project site was previously under agricultural cultivation during the prior surveys. Currently, these agricultural operations have been removed, and these areas are now dominated by a mix of native and non-native herbaceous species. The removal of agricultural operations has increased the amount of available upland habitat for the CTS and has improved the movement and dispersal habitat for the species. The upland habitat supports numerous small mammal burrows; however, the majority of these burrows appear to be associated with Botta's pocket gopher (*Thomomys bottae*) and only a small number of California ground squirrel burrows were observed. Results of the 2015-2016 surveys completed by Dudek indicate that the project site and BSA remains suitable for the CTS. Potential breeding ponds are located within and immediately adjacent to the BSA, and the available upland habitat is suitable for movement and dispersal. Presence of these habitat features, along with the previous observations of the species during focused surveys, show that the species is likely present within the project site.

4.6.2 California Red-Legged Frog

California red-legged frogs (*Rana draytonii*) (CRLF) are federally listed as threatened (FT). They occur on the coastal slope of southern California, in the Coast Ranges and immediate coast from central California north to Mendocino County, and in the foothills of the Sierra Nevada and the Cascade Range bordering the Central Valley. CRLF can survive in a variety of habitat types, including various aquatic, riparian, and upland habitats. Preferred aquatic habitat of the CRLF is characterized by dense shrubby or emergent riparian vegetation, such as arroyo willow (*Salix lasiolepis*), cattail (*Typha* spp.), and bulrush (*Schoenoplectus* spp.), associated with deep (greater

than two feet), still or slow-moving water. The CRLF will also utilize ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, man-made aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry thickets, nonnative annual grasslands, and oak savannas. CRLF have been known to breed successfully in artificial ponds with little or no emergent vegetation, although they generally use emergent aquatic vegetation as braces to anchor egg mass (USFWS 2002). CRLF occurs widely at suitable elevations in Santa Barbara County.

The project site is located within Santa Maria River-Santa Ynez River Core Area, as defined in the Recovery Plan for the species (USFWS 2002). Designated critical habitat for the species (Unit STB-2 San Antonio Terrace (75 FR 12852)) borders the east, west, and south boundaries of Key Site 21. The CNDDB includes several occurrences of the California red-legged frog (CRLF), a species federally listed as threatened (FT), near the project site. Additionally, a protocol-level survey for CRLF was completed in 2004 following the USFWS protocol survey guidelines for the species (USFWS 1997), which has since been updated (USFWS 2005). Results of the previous survey included the observation of nine CRLF individuals at a man-made pond immediately west of the Rancho Maria Golf Course clubhouse during a nighttime spotlighting survey (LFR 2004). No CRLF were observed at this or any other location during the daytime portion of the 2004 surveys (LFR 2004).

~~As noted in *Section 3.6*, results of the previous survey included the observation of nine CRLF individuals at a man-made pond immediately west of the Rancho Maria Golf Course clubhouse during a nighttime spotlighting survey (LFR 2004). No CRLF were observed at this, or any other, location during the daytime portion of the 2004 surveys (LFR 2004).~~ Surveys completed by Dudek in 2015-2016 included a characterization of available aquatic and upland habitat, an assessment of changes to the site and available habitat since the previous surveys, and reconnaissance searches for CRLF. The man-made pond identified to support CRLF in 2004 is situated outside of the project site boundary; however, the project site does provide suitable movement habitat for this species. Although no other ponds were identified to support CRLF in 2004, this species may traverse the project site during dispersal periods in search of suitable breeding ponds in the vicinity of the project site. Results of the 2015-2016 surveys indicate that the available habitat is largely unchanged from the previous survey and that CRLF are likely to remain present within and adjacent to the BSA and project site. No CRLF individuals were identified within the BSA during the 2015-2016 surveys.

4.6.3 Monarch Butterfly

There are no known monarch butterfly over-wintering sites in the Orcutt area; however, the Rancho Maria Golf Course is a known autumnal site for this species (County 2004). Species-

specific surveys were not conducted, and monarch butterfly were not observed roosting on the project site during prior surveys (LFR 2004/ 2005, VJS 2005) or during the surveys completed by Dudek in 2015-2016. This species is protected by the County of Santa Barbara policies. Eucalyptus trees are known to be typical roosting habitat for monarch butterflies. The continued survival of the species is dependent upon the protection of sensitive habitats such as these eucalyptus groves.

4.6.4 Other Special-Status Wildlife Species

The species discussed below have some potential to occur within the BSA, based on the presence of suitable habitat and connectivity to adjacent open space supporting similar natural habitat. Suitable habitat for these species largely occurs outside of the project impact area, and therefore direct impacts to these species are anticipated to be minimized following mitigation.

4.6.4.1 Nesting Raptors

Several species of raptors are known to utilize the project site for foraging and perching, and have the potential to nest in the available habitat within and immediately adjacent to the project site. During 2015-2016 field surveys completed by Dudek, 9 inactive raptor nests were identified within the BSA. Raptor nesting surveys completed in 2016 found no active raptor nests within the BSA; however, several raptor species were identified including red-tailed hawk, white-tailed kite, northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), Cooper's hawk (*Accipiter cooperi*), red-shouldered hawk (*Buteo lineatus*), turkey vulture, great horned owl (*Bubo virginianus*), and American kestrel (*Falco sparverius*). Of these raptor species observed during the survey, red-tailed hawk, red-shouldered hawk, Cooper's hawk, great horned owl, and American kestrel were observed perched within the woodland areas within the project site. The remaining species were only observed soaring and/ or foraging over the project site. Northern harrier was observed on multiple occasions foraging within the project site and golden eagle was observed on one occasion soaring over and to the south of the project site. Based on the available habitat, red-tailed hawk, red-shouldered hawk, Cooper's hawk, great horned owl, white-tailed kite, and American kestrel have potential to nest within the project site and BSA; however, no raptor species were identified to be nesting within the project site and no breeding behavior (e.g., transporting nesting material or prey items) was observed during the 2015-2016 field surveys.

4.6.4.2 Aquatic Invertebrates

One federally threatened (FT) aquatic invertebrate species, vernal pool fairy shrimp (*Branchinecta lynchi*), has potential to occur within the aquatic habitat present within and adjacent to the BSA. No focused surveys for this species have been conducted within the BSA and occupancy of the BSA is unknown. A focused survey for this species would be necessary to determine presence or absence.

4.6.4.3 Reptiles and Amphibians

Several special-status species of reptiles and amphibians, in addition to CTS and CRFL, have potential to occur within the BSA, including western spadefoot (*Spea hammondii*), western pond turtle (*Actinemys marmorata*), silvery legless lizard (*Anniella pulchra pulchra*), Blainville's horned lizard (*Phrynosoma blainvillii*), coast patched-nose snake (*Salvadora hexalepis virgultea*), and two-striped garter snake (*Thamnophis hammondii*). Aquatic species including western spadefoot, western pond turtle, and two-striped garter snake could potentially occur within the available seasonal or perennial ponds within and adjacent to the BSA. Suitable habitat for silvery legless lizard and Blainville's horned lizard is also present within the BSA, and these species may occur on-site. Suitable habitat for special-status reptile and amphibian species is largely within the open space portion of the BSA, specifically within the canyon features associated with the ephemeral waterways traversing the site and within the seasonal/perennial ponds. No individual special-status reptile or amphibian species were identified during the 2015-2016 field surveys.

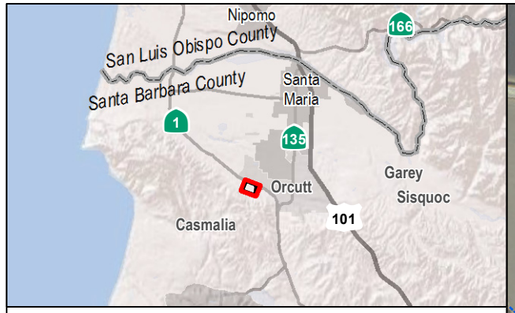
4.6.4.4 Birds

Along with the raptor species previously noted in *Section 4.5.4.1*, special-status bird species including burrowing owl (*Athene cunicularia*) and yellow warbler (*Setophaga petechia*) have potential to occur within the BSA. Burrowing owl specifically, has potential to nest in the grassland habitat present within the BSA; however, no burrows suitable to support this species were identified during the 2015-2016 field surveys. Also, while this species was known to breed in the Santa Maria Valley into the 1990s, it is now believed to breed in Santa Barbara County only in the Cuyama Valley (Lehman 2015). Suitable habitat for all special-status bird species is present primarily within the canyon features associated with the ephemeral waterways traversing the site as well as in the native and non-native woodlands associated with the Rancho Maria Golf Course and adjacent properties. Special-status bird species could potentially utilize the entire BSA as nesting and foraging habitat.

4.6.4.5 Mammals

Numerous special-status mammal species have potential to utilize the BSA, including Townsend's big-eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), pallid bat (*Antrozous pallidus*), American badger (*Taxidea taxus*), and San Diego desert woodrat (*Neotoma lepida intermedia*). One species, American badger, is highly mobile and can utilize a wide variety of habitats, including the majority of the BSA. Friable soils suitable for digging are available throughout much of the BSA; however, no burrows suitable to support this species were identified during the 2015-2016 field surveys. A descriptions of soil type occurring on site is provided in *Appendix ~~E~~ I, Soil Descriptions*.

Suitable foraging habitat for special-status bat species is present throughout the project site and BSA. Habitat for San Diego desert woodrat and roosting habitat for western red bat and pallid bat is largely confined to the canyon features associated with the ephemeral waterways traversing the site as well as in the native and non-native woodlands associated with the Rancho Maria Golf Course and adjacent properties. No suitable roosting habitat for Townsend's big-eared bat is present within the project site or BSA. No individual special-status mammal species were identified during the 2015-2016 field surveys.



Key Site 21
Permanent Impact Area

Special-Status Plants
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)

Special-Status Wildlife
Potential California Tiger Salamander Breeding Pond
California Red-Legged Frog Pond

Vegetation Communities

Tree Communities
CLOW - Coast live oak woodland
CLOW-AWT - Coast live oak woodland-arroyo willow thickets
EG (SNS) - Eucalyptus grove

Shrub Communities
AWT - Arroyo willow thickets
CSS - California sagebrush scrub
CYS - Coyote brush scrub

Herbaceous Communities
CAG - Non-native grassland
CAG (m) - Non-native grassland (mowed)
BOT - Bristly oxtongue
CTM - Cattail marshes

Native Grasslands
PNGG - Purple needle grass grassland
RGG - Perennial rye grass grassland

Other Land Cover Types
DEV - Urban/Developed
Debris - Debris

Hydrologic Features
Ponded Area (1/19/2016)
Jurisdictional Wetland/ Riparian Area

National Wetlands Inventory (NWI)
NWI Creek
NWI Wetland

USGS National Hydrography Dataset
NHD Flowline
NHD Lake/Pond

0 200 400 800 Feet

AERIAL SOURCE: NAIP 2014

DUDEK

FIGURE 7
Proposed Impact Area

Biological Resources Assessment Report for The Neighborhoods of Willow Creek and Hidden Canyon Project

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5 IMPACT ANALYSIS AND MITIGATION MEASURES

This section addresses potential biological constraints to future development based on existing vegetation communities and wildlife habitats, hydrological features, prior focused survey results, and 2015-2016 habitat suitability assessments and surveys for special-status species. Available project-specific literature, regional data, and recent surveys on nearby properties were also used in the analysis. Potential constraints determine recommended measures to avoid these constraints to the greatest extent feasible. Note that the project is not located within, or would conflict with, any established Habitat Conservation Plan (HCP) or Natural Communities Conservation Plan (NCCP).

5.1 Thresholds of Significance

5.1.1 California Environmental Quality Act (CEQA)

The CEQA Guidelines section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (CEQA Guidelines section 15064[e]). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. Guidelines section 15065(a) is also helpful in defining whether a project may have "a significant effect on the environment." Under that section, a project may have a significant effect on the environment if the project has the potential to: (1) substantially degrade the quality of the environment, (2) substantially reduce the habitat of a fish or wildlife species, (3) cause a fish or wildlife population to drop below self-sustaining levels, (4) threaten to eliminate a plant or animal community, (5) reduce the number or restrict the range of a rare or endangered plant or animal, or (6) eliminate important examples of a major period of California history or prehistory.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

5.1.2 County of Santa Barbara

5.1.2.1 Environmental Thresholds

The County (2008) provides types of impacts to biological resources:

> *Disturbance to habitats or species may be significant, based on substantial evidence in the record (not public controversy or speculation), if they substantially impact significant resources in the following ways:*
>
> *1) Substantially reduce or eliminate species diversity or abundance*
>
> *2) Substantially reduce or eliminate quantity or quality of nesting areas*
>
> *3) Substantially limit reproductive capacity through losses of individuals or habitat*
>
> *4) Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources*
>
> *5) Substantially limit or fragment range and movement (geographic distribution or animals and/or seed dispersal routes)*
>
> *6) Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends.*

Furthermore, the size, type, and timing of impacts should be considered in assessing the significance of project impacts on biological resources (County 2008).

The County provides general mitigation guidelines for biological impacts using a mitigation hierarchy presented in the order of their effectiveness to reduce biological impacts. First, avoid impacts to biological resources through project design. Second, minimize or reduce impacts through on site design and resource protection measures. Last, mitigate for on-site impacts through off-site measures (County 2008).

5.1.2.2 Orcutt Community Plan

This biological resources assessment report addresses the County's biological resources policies as defined in the OCP (County 2004), which identifies sensitive habitats and species and provide measures to direct project design and policies to protect biological resources. Policies and Development Standards are included, as appropriate, for each biological resource that will be impacted by development. Policies not included are assumed to be consistent with the project. All policies are included in the draft Open Space Management Plan (dOSMP; Dudek 2019c) (*Appendix ~~F~~ J, Draft Open Space Management Plan*).

5.2 Vegetation Communities

The development of the project will result in the permanent conversion of 82.97 ~~87.0~~ acres and temporary conversion of 0.80 acre of existing on-site vegetation communities, as identified on *Figure ~~6~~ 7* and *Table ~~7~~ 10*, into residential and associated uses. Impacts to vegetation communities are presented in *Table ~~7~~ 10*. Note that the impact acreages and project boundaries included on the figures are based on the engineering and specific plan design provided by Bethel Engineering and Forma in computer-aided drafting and design (CADD) format. When converted to GIS, these boundaries may be skewed by a number of variables, including the aerial basemap and coordinate projection, and as a result acreage calculations may vary slightly between programs. Six native sensitive vegetation communities will be impacted by the proposed development: purple needle grass grassland, perennial rye grass fields, coyote brush scrub, California sagebrush scrub, cattail marshes, and arroyo willow thickets. Additionally, California annual grassland, where the majority of permanent impacts will occur, is a common vegetation community that provides wildlife habitat to a variety of species, including the California tiger salamander (i.e., upland habitat). The development of the project will result in indirect impacts to vegetation communities during construction from dust associated with grading and soil movement. The project will require a storm water pollution prevention plan (SWPPP) which includes measures to avoid and minimize sediment and water quality impacts. Such measures may include active water truck applications during soil disturbance, limitations to work within wind conditions above 20 miles per hour, reduced driving speeds to minimize dust, and best management practice including silt fence, straw wattles, and erosion control blankets. Impacts to vegetation communities are discussed further below.

Table 10
Summary of Impacts to Existing Vegetation Communities and Their Acreage in Key Site 21and the ~~Project Site~~ Sewer Line Easement

Physiognomic Category	General Habitat	Vegetation Communities	Total Acres Existing in Key Site 21 and the Sewer Line Easement	Total Permanent Impacts (Acres)	Total Temporary Impacts (Acres)
Herbaceous Alliances and Stands	Grassland	California annual grassland	~~157.19~~ 157.21	~~79.15*~~ 72.54	0.02
		Purple Needle Grass Grassland[1]	1.86	1.50	--
		Perennial Rye Grass Fields[1]	0.73	0.73	--
	Forb Dominated	Bristly Ox-tongue[2]	0.92	~~0.67~~ 0.69	--
		Cattail Marshes[1,2]	0.13	0.12	--
Herbaceous Alliance and Stands Total			*160.83*	*~~82.17~~ 75.59*	*0.02*

Table 10
Summary of Impacts to Existing Vegetation Communities and Their Acreage in Key Site 21and the ~~Project Site~~ Sewer Line Easement

Physiognomic Category	General Habitat	Vegetation Communities	Total Acres Existing in Key Site 21 and the Sewer Line Easement	Total Permanent Impacts (Acres)	Total Temporary Impacts (Acres)
Shrubland Alliances and Stands (Upland)	Coastal Scrub	Coyote Brush Scrub Alliance[1]	20.10	~~2.17~~ 2.19	--
		California Sagebrush Scrub Alliance[2]	5.91	~~0.18~~ 0.01	--
Shrubland Alliances and Stands (Upland) Total			*26.01*	*~~2.35~~ 2.20*	--
Shrubland Alliances and Stands (Wetland)	Riparian Scrub	Arroyo Willow Thickets[1,2]	~~3.79~~ 3.90	~~1.99~~ 1.55	0.11
Shrubland Alliances and Stands (Wetland) Total			*~~3.79~~ 3.90*	*~~1.99~~ 1.55*	0.11
Tree Alliances and Stands	Woodlands	Eucalyptus Grove[3]	5.08	0.49	--
		Coast Live Oak Woodland-Arroyo Willow Thickets[1]	15.17	--	--
		Coast Live Oak Woodland[1]	10.03	--	--
Tree Alliances and Stands Total			*30.28*	*0.49*	--
Non-Vegetated Habitats		Developed	~~112.72~~ 112.73	~~5.20~~ 3.14	0.01
		Debris	0.74	--	--
		Fallow Agriculture	0.66	--	0.66
Non-Vegetated Habitats Total			*113.46*	*~~5.20~~ 3.14*	*0.67*
Grand Total			**~~334.37~~ 335.17**	**~~92.20~~ 82.97**	**0.80**

5.2.1 Native Grasslands

The Santa Barbara County *Environmental Thresholds and Guidelines Manual* (County 2008, revised July 2015) defines native grassland according to a minimum percent cover and area of cover threshold of native grassland species. According to the County (2008), a native grassland is an area where native grassland species comprise 10 percent or more of the total relative cover. Relative cover is the cover of a particular species as a percentage of total plant cover of a given area. The two native grassland types existing on-site, purple needle grass grassland and perennial rye grass fields, will incur permanent impacts through the conversion of the site into residential development. Permanent impacts will total 1.50 acres of purple needle grassland and 0.73 acres of perennial rye grass fields. Therefore, a majority (approximately 81%) of purple needle grass grassland and all (100%) of perennial rye grass fields documented on-site will be impacted.

Additionally, the area containing perennial rye grass fields is situated in County designated sensitive habitat per the OCP (see Figure KS21-1).

The County provides the following impact assessment guidelines for native grasslands (County 2008):

> *(1) For purposes of resource evaluation in Santa Barbara County, native grassland is defined as an area where native grassland species comprise 10 percent or more of the total relative cover.*
>
> *(2) Removal or severe disturbance to a patch or patches of native grasses less than one-quarter acre, which is clearly isolated and is not a part of a significant native grassland or an integral component of a larger ecosystem, is usually considered insignificant.*

Native grassland polygons mapped on-site follow the above definitions, with most sites comprising 10 percent or more of the total relative cover. The County provides the following project design suggestions for native grasslands (County 2008):

> *7) Design the project so that continuous habitat areas are preserved to the greatest extent feasible.*
>
> *8) Incorporation of restoration and enhancement measures, including weeding, intentional burning, revegetation (planting of seeds or plugs), or other procedures will facilitate natural regeneration of the grassland.*

5.2.1.1 Purple Needle Grass Grassland

The project will result in the permanent conversion of 1.50 acres of purple needle grass grassland to residential uses. Mitigation for sensitive vegetation communities, such as purple needle grassland, vary between project depending on the quality and extent of the habitat and type of impact, temporary or permanent. For permanent direct impacts to purple needle grass grasslands on Key Site 21, a mitigation ratio of 2:1 is recommended. Implementation of measure **BIO-1** is recommended to mitigate impacts to purple needle grass grassland.

BIO- 1 **Open Space Management Plan.** The draft Open Space Management Plan (dOSMP) (Dudek 2019c, *Appendix ~~F~~ J*) has been prepared to address project impacts to sensitive vegetation communities and wetland habitats along with managing open space for special-status species in accordance with the OCP DevStd BIO-O-1.2 and BIO-O-1.8 (County 2004). The final OSMP will include a plan to create or restore all wetland areas, sensitive upland vegetation, and special-status plant species disturbed by construction of the project. All conditions required by

the County during the CEQA process and following consultation with the resource agencies will be incorporated into the final OSMP.

5.2.1.2 Perennial Rye Grass Fields

The project will result in the permanent conversion of 0.73 acre of perennial rye grass fields located in sensitive habitat to residential uses. Mitigation for sensitive vegetation communities, such as perennial rye grass fields, can vary between project depending on the quality and extent of the habitat and type of impact, temporary or permanent. For permanent direct impacts to perennial rye grass fields on Key Site 21, a mitigation ratio of 2:1 is recommended. Implementation of measures **BIO-1** and **BIO-2** are recommended to mitigate impacts to perennial rye grass fields.

BIO-2 **Project Redesign**. It is recommended that the project is redesigned to avoid the perennial rye grass fields and sensitive habitat under the OCP (County 2004), specifically DevStd BIO-O-1.1. Perennial rye grass fields are challenging to restore on the Key Site 21 due to their ecological requirements (i.e., topography, soils, hydrology, and full sun exposure) without impacting other sensitive resources, such as the potential wetlands in the northwest and northeast portions of the site.

5.2.2 Wetland and Riparian Vegetation

Bristly ox-tongue is found in areas that potentially constitute wetland habitat and arroyo willow thickets and cattail marshes are considered a riparian habitat per the County's thresholds. According to the County (2008), the following types of project-related impacts to wetland habitat may be considered significant:

(1) Projects which result in a net loss of important wetland area or wetland habitat value, either through direct or indirect impacts to wetland vegetation, degradation of water quality, or would threaten the continuity of wetland-dependent animal or plant species are considered to have a potentially significant effect on the environment (California Environmental Quality Act: Guidelines, Appendix G; items c, d, and t).

(2) Wildlife access, use, and dispersal in wetland habitats are key components of their ecosystem value. For example, many upland species of wildlife could not persist without access to water. Movement between contiguous habitats through riparian areas (e.g.: from mountainous chaparral to valley grassland or coastal mesa) allows for many species to continue to persist and prevents genetic isolation. Projects which substantially interrupt wildlife access, use and

dispersal in wetland areas would typically be considered to have potentially significant impacts.

(3) The hydrology of wetlands systems must be maintained if their function and values are to be preserved. Therefore, maintenance of hydrological conditions, such as the quantity and quality of run-off, etc., must be assessed in project review.

According to the County (2008), the following types of project-related impacts to riparian habitat may be considered significant:

(1) Direct removal of riparian vegetation.

(2) Disruption of riparian wildlife habitat, particularly animal dispersal corridors and or understory vegetation.

(3) Intrusion within the upland edge of the riparian canopy (generally within 50 feet in urban areas, within 100 feet in rural areas, and within 200 feet of major rivers listed in the previous section), leading to potential disruption of animal migration, breeding, etc. through increased noise, light and glare, and human or domestic animal intrusion

(4) Disruption of a substantial amount of adjacent upland vegetation where such vegetation plays a critical role in supporting riparian-dependent wildlife species (e. g., amphibians), or where such vegetation aids in stabilizing steep slopes adjacent to the riparian corridor, which reduces erosion and sedimentation potential.

(5) Construction activity which disrupts critical time periods (nesting, breeding) for fish and other wildlife species.

The County provides the following project design suggestions for riparian habitats (County 2008):

(a) Incorporate into project design a vegetated buffer from the upland edge of the riparian canopy at least 50 feet in width.

(b) Inclusion of adjacent upland vegetation in the buffer. Upland vegetation is important as habitat for a large number of species, particularly amphibians, and also aids in stabilizing the banks, which reduces erosion and sedimentation potential.

(c) Retain animal dispersal corridors, including the understory.

(d) Construction activity can be planned to avoid critical time periods (nesting, breeding) for fish and other wildlife species.

(e) Careful siting of some projects such as bridges and pipelines can limit the disturbance area to previously disturbed locations.

(f) Restoration or enhancement of riparian habitat on a project site can enhance the ecological value of the creek, stream, or river, both upstream and downstream.

Waters of the U.S. and State are subject to the jurisdiction of U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). Waters of the U.S. and State present within the project site will be impacted.

The USACE's Nationwide Permit (NWP) Program is issued for a variety of projects having minimal impacts to jurisdictional Waters of the U.S., including wetlands. If a project fails to comply with the terms and regulations specified in the NWP guidelines, then an Individual Permit to the USACE must be prepared. The Individual Permit application must include an alternatives analysis that would be completed to allow the USACE to make findings in accordance with Section 404(b)(1). Before the USACE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter-Cologne Act. Applications to the RWQCB must include a complete certified CEQA document. Impacts to channel bed and bank will require a Streambed Alteration Agreement in accordance with Section 1602 of the California Fish and Game Code. For each permit, quantitative mitigation for impacts will be determined during the permitting process.

5.2.2.1 Impacts to Wetland and Riparian Vegetation

Following the wetland delineation and jurisdictional determination completed for the project, (**BIO-3**), ~~The~~ three wetland and riparian vegetation communities were documented on-site, arroyo willow thickets, cattail marshes, and bristly ox-tongue, which will incur permanent impacts through the conversion of the site into residential development. Permanent impacts will total ~~1.99~~ 1.55 acres of arroyo willow thickets, 0.12 acre of cattail marshes, and ~~0.67~~ 0.69 acre of bristly ox-tongue, and an additional 0.11 acre of temporary impacts to arroyo willow thickets, totaling 2.47 acres of impacts to wetland and riparian vegetation. Mitigation for wetland and riparian vegetation communities, including arroyo willow thickets, cattail marshes, and bristly ox-tongue, can vary between 1:1 and 3:1 thus resulting in required restoration of 2.47 acres to 7.41 acres of wetland and riparian vegetation, based on quality of vegetation and impact type (temporary and permanent). Project mitigation ratios should be based on final permit conditions and agency feedback. These habitats associated with a wetland and riparian features have the potential to be jurisdiction of USACE, RWQCB, and CDFW. Additionally, the sewer line easement potentially crosses a jurisdictional waterway north of Key Site 21. Impacts to USACE, RWQCB, and CDFW

jurisdictional features require permits pursuant to the CWA and Fish and Game Code. ~~To determine the exact location, extent, and jurisdiction of wetland and riparian habitats impacted by the project, it is highly recommended that an updated wetland delineation and jurisdictional determination be performed per USACE, RWQCB, CDFW, and County standards (**BIO-3**).~~ To compensate for unavoidable impacts to wetland and riparian vegetation and habitats, mitigation should be incorporated into the final OSMP (**BIO-1**). To reduce any further impacts to wetland and riparian habitats and the special-status species that may utilize these habitats, wetland protection (**BIO-4**) and workers' education training (**BIO-5**) are also recommended.

BIO-3 **Formal Jurisdictional Delineation and Determination.** ~~Conduct a formal~~ Following completion of the ~~Wetland~~ ~~Delineation~~ wetland delineation, an ~~and~~ Approved Jurisdictional Determination (AJD) ~~per~~ through the USACE will be requested. ~~, RWQCB, CDFW, and County standards and submit copies to the identified regulatory agencies for their concurrence.~~ Based on Dudek's findings, the project will impact wetland and riparian vegetation; therefore, a pre-application meeting with the regulatory agencies to decide on permitting requirements under the Clean Water Act and Fish and Game Code ~~is highly recommended~~ will be necessary.

BIO-4 **Wetland Protection.** Following completion of a wetland delineation/ jurisdictional determination and necessary permitting, riparian areas outside of the approved project boundaries should be protected to the greatest extent possible consistent with OCP (County 2004) DevStd BIO-O-1.5, DevStd BIO-O-1.8, DevStd BIO-O-3.1, and DevStd BIO-O-5.6. Specifically, these protection measures should include the following:

A. Establish a temporary and/or permanent barrier between riparian habitat using highly visible fencing during construction to ensure that trees and other vegetation are visible during construction. Long-term fencing will accommodate wildlife passage, where appropriate.

B. When sizeable construction equipment is working near riparian vegetation, it is highly encouraged that flaggers are utilized to assist in equipment positioning to avoid riparian impacts during construction activities.

C. Excavated fill for retention basins shall not be placed in wetlands, riparian habitats, and other important natural resources.

BIO-5 **Workers Educational Training.** Prior to the initiation of any site disturbance and/or construction activities, all personnel associated with the project should attend a worker education training program (program) conducted by a qualified

biologist. In general, it is recommended that the program discuss California tiger salamander, California red-legged frog, Blochman's dudleya, and other special-status species habitat preference(s), occupied habitat in the area, life histories, law and regulations, as well as potential construction impacts and protection measures, and project limits. Protections and regulations for ephemeral waterways, the riparian habitat, and nesting birds should also be included in the program. It is recommended that a species and habitat fact sheet also be developed prior to the training program and distributed at the training program to all contractors, employers and other personnel involved with the construction of the project. Specifically, the program should also include:

A. Measures to prevent indirect impacts during construction activities should be covered, including delivery, storage, and usage of construction materials and chemicals as they relate to the protection of adjacent aquatic habitat.

B. Training materials should include laws and regulations that protect sensitive biological resources, the consequences of non-compliance with those laws and regulations and a contact person (i.e., construction manager, biological monitor, and project manager) in the event that protected biological resources are affected.

The project proponent should notify the qualified biologist in advance of the kick-off meeting and any subsequent meetings that may take place if additional contractors are employed during additional construction projects of the project. A sign in sheet will be circulated for signatures to all personal that attend the workers educational training to confirm that program materials were received and that they understand information presented.

5.2.3 Coastal Scrub

In Santa Barbra County, California sagebrush scrub vegetation alliance is considered sensitive under the Orcutt Community Plan as a central sage scrub (County 2005) and coastal sage scrub (County 2008). The County provides the following project design suggestions for coastal sage scrub (County 2008):

(a) The basic principles of preserving biodiversity apply to this habitat type. Design the project so that continuous, unbroken habitat areas are preserved to the greatest extent feasible.

(b) Retain corridors to connect with other undisturbed areas to preserve wildlife travel corridor.

(c) Removal of invasive exotic species such as freeway ice plant (Sadler and Shied 1988) and pampas grass improves the quality of the remaining habitat.

(d) Consider indirect effects of chaparral removal, including reduction of groundwater recharge, increased erosion and sedimentation to adjacent creeks and streams which may affect riparian habitats and wildlife.

(e) Balance between design measures for habitat protection and for fire management. It should be noted that other vegetation communities on-site may provide high biological value, but apart from their value as wildlife habitat, are not considered to have "special status." Impacts to these communities will be analyzed in the context of their value as wildlife habitat.

With the reclassification of vegetation types, coyote brush shrub is currently not considered sensitive by the State or local agencies; however, it generally falls within the broader coastal scrub vegetation description.

5.2.3.1 Impacts to Coastal Scrub Vegetation

Two coastal scrub vegetation communities existing on-site, coyote brush scrub and California sagebrush scrub, will incur permanent impacts through the conversion of the site into residential development. Permanent impacts will total ~~2.17~~ 2.19 acres of coyote brush scrub and ~~0.18~~ 0.01 acre of coastal sage scrub, totaling 2.20 acres of impacts to coastal scrub vegetation. Impacts to the California sagebrush scrub vegetation community should be mitigated. Mitigation for coyote brush scrub, a widespread native scrub type that often forms a poorly functioning monoculture, should be creation of a diverse coastal scrub vegetation community at a 1:1 mitigation ratio. Final mitigation quantities should be based on permit conditions, including County approved final grading and trenching plan.

5.3 Protected Trees

Policies for native and non-native trees are defined in the Conservation Element – Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (County of Santa Barbara 2009), Tree Protection Policy Paper (County of Santa Barbara 2002), and OCP (County of Santa Barbara 2004). Dudek analyzed impacts to all qualifying protected trees that will be affected by implementation of the project. Native trees shall be considered established and protected if they are six feet in height (County of Santa Barbara 2004). More specifically, native coast live oak trees that are six inches or

greater in DBH or six feet or greater in height (County of Santa Barbara 2009) are considered protected. Protected non-native trees are those with a DBH of 25 inches or greater.

The development of the project would result in permanent impacts to 23 protected tree species within the two housing development areas and potential temporary impacts to approximately 64 protected tree species (i.e., arroyo willow (*Salix lasiolepis*)) along the proposed sewer line easement north of State Route 1). Additionally, the tree canopy and root zone of 14 protected trees would be impacted by development of the project.

Prior to the start of construction, a tree protection plan should be prepared in accordance with the Biology – Trees section of A Planner's Guide to Conditions of Approval and Mitigation Measures (County of Santa Barbara 2011). The tree protection plan should include measures to protect trees that will not be removed, identify trees that will be removed, and provide mitigation measures for trees that will be removed. Following the tree protection plan, a tree replacement plan should be prepared to specify the mitigation and success criteria for the mitigation plantings. This removal would be a potentially significant impact. Removal of trees would be feasibly mitigated by incorporating biological resources measures:

a. The species, quantities, and locations of trees that shall be boxed and replanted. Depict original and new locations for these trees.

BIO-7 **Tree Protection Plan.** The Owner/Applicant shall submit a Tree Protection Plan (TPP) prepared by a P&D-approved arborist and/or biologist and designed to avoid impacts to preserved trees. Site Plan Component. The plan shall include the following site plan components:

b. The Owner/Applicant shall comply with and depict the following on the TPP exhibit and Grading and Building Plans.

c. The species, quantities, and locations of trees that shall be preserved.

d. Where development would encroach within 50 feet of trees, but construction and development would not directly impact the health of the trees, no grading for buildings and well placement shall take place within the area within six feet of the dripline of any of these trees.

e. The species, quantities, and locations of trees that shall be removed per approved plans.

f. Development/building envelopes. Include utility corridors, irrigation lines, roadways, and driveways. If utilities may go through trees, the utility corridor must be designed to minimize impacts.

g. Equipment staging (including construction materials, equipment, fill soil or rocks) and construction staging and parking areas outside of the protection area.

h. The type and location of protective fencing or other barriers to be in place to protect trees in protection areas during construction.

i. The location of all tree wells or retaining walls. These shall be located outside the area within six feet of the dripline of all protected trees unless authorized by P&D.

j. The location of all paths, including driveways and sidewalks, within 25 feet of dripline areas. Only pervious paving materials (gravel, brick without mortar, turf block) are permitted within 6 feet of dripline areas.

If coast live oak trees six inches or greater in DBH or blue oak trees four inches or greater DBH, or coast live oaks or blue oaks six feet or greater in height are removed, then replacement plantings shall occur on site in accordance with Oak Tree Protection in the Inland Rural Areas of Santa Barbara County Oak Tree Protection Policy 1 and Development Standard 1: Protection of all species of mature oak trees (County of Santa Barbara 2009). When replanting oak trees on site is not feasible, replanting shall occur on receiver sites known to be capable of supporting the particular oak tree species, an in areas contiguous with existing woodlands or savannas where the removed species occurs. Replanting shall conform to the County of Santa Barbara's Standard Conditions and Mitigation Measures (County of Santa Barbara 2011).

Additionally, if native trees six feet in height or greater are removed, they shall be replaced in a manner consistent with OCP (County of Santa Barbara 2004) Policy BIO-O-3, DevStd BIO-O-3.1, and County of Santa Barbara's Standard Conditions and Mitigation Measures (County of Santa Barbara 2011).

If non-native trees of greater than or equal to 25 inches in DBH are removed, mitigation should be considered by replacement with native trees consistent with OCP (County of Santa Barbara 2004) Policy BIO-O-4, DevStd BIO-O-4.1, and County of Santa Barbara's Standard Conditions and Mitigation Measures (County of Santa Barbara 2011).

Removal of native and non-native protective trees would be feasibly mitigated by incorporating additional biological resources measures (Dudek 2016):

BIO-8 **Protected Tree Mitigation.** The applicant shall mitigate for impacts to protected trees are as follows:

- For each coast live oak tree that is removed and/or damaged (more than 20% encroachment into the root zone), it shall be replaced on a 10:1 basis with 1

gallon size saplings grown from seed obtained from the same watershed as the project site for native trees that are naturally found in the watershed.

- For each arroyo willow tree impacted, it shall be mitigated or replaced on a 3:1 basis with willow stakes or similar accepted horticulture techniques within the riparian zone where the trees were impacted. Arroyo willow replacement shall be consistent with all federal and state regulatory permits for waters of the U.S. and State and wetlands.
- For impacts to non-native protected trees, the replacement ratio should be based upon the goal of establishing one vigorous tree for each tree lost after 10 years, generally set [up to] a 10:1 standard [depending on species and the size of the container stock] (County of Santa Barbara 2002). The applicant may choose to use trees grown in larger nursery container stock at a lower mitigation ratio; however, a 1:1 mitigation ratio would have to be achieved for non-native protected trees prior to permit sign off and/or mitigation bond release.

It is recommended that to the greatest extent feasible, trees are planted within the southern part of the site. Planting locations shall be incorporated into the Open Space Management Plan (Dudek 2019c).

BIO-9 **Tree Replacement Plan.** The Owner/Applicant shall submit for P&D approval a Tree Replacement Plan (TRP) prepared by a P&D-approved arborist/biologist and designed to mitigate for impacts to trees. The TRP shall include the following components:

1. The replacement trees shall be of the same species or native species if non-native species are removed or impacted:
   a. Minimum 1-gallon size of the same species of tree obtained from locally occurring saplings or seed stock shall be installed for every native or specimen tree approve to be removed, relocated, or significantly disturbed/damaged, or as based on final permit conditions and agency feedback. Show replanting locations on plans.
2. Native tree species shall be from locally obtained plant and seed stock.
3. The trees shall be fenced to keep out small mammals.
4. The trees shall be irrigated with drip irrigation on a timer until established (a period to be determined by the P&D-approved arborist).

5. The trees shall be weaned off of irrigation over a period of two to three years.
    a. No permanent irrigation shall occur within the dripline of any native tree installed in their natural habitat as part of mitigation.
6. If replacement trees cannot all be accommodated on site, the Owner/Applicant shall submit a plan for P&D approval for replacement trees to be planted off site.
7. All new and replanted trees shall be protected from predation by wild and domestic animals and from human interference by the use of staked protective cages or tubes and gopher baskets or root shields during the maintenance period.

5.4 Special-Status Plant Species

Special-status plant species include those that are federally or state listed. In addition, CDFW recognizes that all plants with a CRPR of 1A, 1B, and 2, and some ranked 3 in the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants in California* (CNPS 2011) may meet the criteria for listing as threatened or endangered and should be considered under CEQA. In addition, impacts to species included on the *Rare Plants of Santa Barbara County* (Wilken 2012) list may be considered significant under CEQA. One special-status plant species, Blochman's dudleya, has been identified on the site. However, the population of Blochman's dudleya is not within a proposed development area and, therefore, the project will not result in impacts to Blochman's dudleya.

5.5 Special-Status Wildlife Species

5.5.1 California Tiger Salamander

The project could result in the loss or substantially degrade or reduce wetland and upland habitat suitable for special-status wildlife species resulting in incidental mortality of California tiger salamander. The CTS is both a federally endangered species (Santa Barbara DPS) and a state threatened species. Under the ESA, it is unlawful to "take" (i.e., "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct") or "harm" the species such that significant habitat modification or degradation significantly impairs essential behavioral patterns (e.g., nesting or reproduction). Under the CESA, "take" is defined as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" a listed species.

The project site supports wetland and upland habitat known to support ~~CRLF~~ CTS based on the results of prior focused surveys (VJS 2005). As stated in *Section 4.6.1* above, a drift fence survey was completed in 2004-2005 for CTS and a total of 10 individuals were detected in pitfall traps within the northern portion of the project site. As currently proposed, the project will directly

impact upland habitat supporting small mammal burrows which provide cover for CTS during migration and dispersal as well as potentially for aestivation habitat. Direct impacts will occur during construction of the residential development as well as potentially during the implementation of the mitigation program described in the OSMP. The aquatic habitat within the BSA will not be impacted by the project; however, direct impacts to upland habitat for CTS may result in the burial of aestivating individuals or impacts to individuals migrating from upland habitat to aquatic habitat. Although the project will result in impacts to upland habitat, the project is not anticipated to produce any significant impediment to the movement and dispersal of CTS in the portion of the BSA that has been documented as a dispersal route for the species. Recommended measures provided below will be applicable to those activities that have potential to impact CTS. The potential breeding ponds present within the BSA but outside of the project site will not be impacted by the project. Indirect impacts during construction may include increased noise and lighting, as well as stormwater discharges from the grading area. Long-term indirect impacts include increased vehicular and foot traffic, lighting, and noise. Recommended measures **BIO-1**, **BIO-4**, **BIO-5**, and **BIO-10** will address potential impacts to the CTS.

BIO-10 **USFWS and CDFW Consultations** are highly recommended at least one-year prior to expected initiation of project activities to allow for regulatory permitting under the Endangered Species Act. A USFWS Section 7 or 10 take permit and 2081 CDFW take permit will likely be required for this project to proceed. Additionally, the implementation of appropriate avoidance and minimization measures (**BIO-1**, **BIO-4**, and **BIO-5**) will be necessary to ensure that CTS impacts are minimized to the greatest extent feasible. Additionally, implementation of **BIO-3** (wetland delineation), preparation of a "federal" biological assessment, and submittal of a Clean Water Act Section 404 permit application be completed as early as possible if the project applicant is interested in the Section 7 route to an Incidental Take Permit (ITP). The La Purisima Conservation Bank or others suitable banks with Habitat Conservation Plan (HCP)-ITP coverage is another option for the purchase of credits, pending their availability. In addition to compensation for impacts to suitable upland habitat, the following measures may be required pending consultation with the USFWS and CDFW:

- During the consultation process, additional avoidance and minimization measures are anticipated to be required including the avoidance of potentially occupied small mammal burrows to the greatest extent feasible. If potentially occupied burrows for CTS cannot be avoided, the excavation of small mammal burrows would be necessary within the project grading area. Burrow excavation may be performed using hand tools under the direct supervision of USFWS

approved biologist. In lieu of burrow excavation, steel plates or plywood may also be utilized to protect small mammal burrows from ground disturbance. Plates and plywood will be removed nightly when a significant rain event is forecasted within 48 hours and will be removed if work is scheduled to cease for consecutive days.

- Limit construction to the dry season (April through October) when California tiger salamanders are less likely to be mobile.
- Should work be delayed and work is required in the wet season, work will not begin until one-half hour after sunrise and will end one-half hour before sunset.
- Pre-construction surveys within the project site to be conducted by a USFWS approved biologists will occur within 14-days prior to initiating work. The biologist will also be present during any ground disturbing activities to monitor for the presence of CTS and other listed and special-status species.
- Should CTS be observed within the project area, work in that area will cease until the CTS has been allowed to move out of harm's way of its own accord. If a CTS does not move out of harm's way on its own, then it will be relocated to the nearest suitable habitat away from the work area by a Service approved biologist. Only approved biologists are allowed to handle listed species.

These~~is~~ and any other potential avoidance and minimization measures would be implemented pending the results of USFWS and CDFW consultation.

5.5.2 California Red-legged Frog

The project could result in the loss or substantially degrade, or reduce wetlands habitat suitable for special-status wildlife species resulting in incidental mortality of California red-legged frog.

It is unlawful to "take" (i.e., "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct") CRLF, a federally threatened species, or "harm" the species such that significant habitat modification or degradation significantly impairs essential behavioral patterns (e.g., nesting or reproduction).

Wetlands which are known to support CRLF are located within the Rancho Maria Golf Course property, immediately adjacent to the project site (LFR 2004). As noted in *Section 4.5.2*, a total of nine CRLF individuals were observed within a man-made pond immediately west of the golf course clubhouse. As currently proposed, the project will not impact this man-made pond; however, use of the project site by CRLF is not known definitively and other ponding locations and/ or upland habitats within and adjacent to the project site may be used by this species. Direct

impacts to upland habitat will occur during construction of the residential development as well as potentially during the implementation of the mitigation program described in the OSMP. These impacts may result in the burial of aestivating CRLF and recommended measures provided below will apply to those activities that have potential to impact CRLF. As noted in *Section 5.5.1* above, the project will result in impacts to upland habitat; however, no significant impediments to the movement and dispersal of CRLF are anticipated to result from implementation of the project. Indirect impacts during construction may include increased noise and lighting, as well as stormwater discharges from the grading area. Long-term indirect impacts include increased vehicular and foot traffic, lighting and noise. USFWS and CDFW consultation described above for CTS will also include consultation for CRLF and appropriate mitigation measures will be finalized pending the results of the consultation process. Recommended measures **BIO-1**, **BIO-4**, **BIO-5**, and **BIO-10** will address potential impacts to the CRLF.

5.5.3 Monarch Butterfly Roosting

The project could result in the potential loss or degradation of monarch butterflies autumnal and over-wintering habitat.

Monarchs are known to migrate through the area during winter months along the coastal strip from Los Angeles to Santa Barbara with a known autumnal site at the Rancho Maria Golf Course. The project site provides suitable roosting habitat in the form of a large mixed eucalyptus windbreaks in the central, central-northern, and central-eastern portions of the site. The project will permanently impact approximately 0.49 acres of eucalyptus stands on the site. Due to the small overall impact area to eucalyptus stands, the impact would be considered minimal to monarch butterflies. Recommended measures **BIO-1**, **BIO-5**, and **BIO-11** will address potential impacts to monarchs.

9-22: Butterfly trees shall not be removed except where they pose a serious threat to life or property, and shall not be pruned during roosting and nesting season.

BIO-11 **Eucalyptus seasonal restriction**. Complete impacts to eucalyptus stands outside of the autumnal and over-wintering season. Eucalyptus tree impacts shall occur in the late summer after the end of the bird breeding season and prior to the start of the monarch autumnal season.

5.5.4 Other Special-Status Wildlife

The project could result in the potential loss or degradation of reptile and amphibian habitat as well as direct mortality of individual reptiles and amphibians. Ground disturbance activities associated with site preparation and grading have the potential to impact special-status reptile and amphibian ~~species~~ individuals and habitat during construction of the residential development and

potentially during the implementation of the mitigation program described in the OSMP within upland habitats. Aquatic habitat for special-status reptile and amphibian species is not anticipated to be impacted by the project. ~~Reptiles~~ Special-status reptiles and amphibian species will use a variety of habitats present within the project site including arroyo willow thickets, coastal sage scrub, eucalyptus groves, and grassland habitats. Although the project will result in impacts to upland habitat, the project is not anticipated to produce any significant impediment to their movement and dispersal within and through the BSA. ~~Impacts to these habitat types will potentially result in direct impacts to reptiles and amphibians.~~ Indirect impacts during construction may include increased noise and lighting, as well as stormwater discharges from the grading area. Long-term indirect impacts include increased vehicular and foot traffic, lighting, and noise. Recommended measures **BIO-1**, **BIO-4**, **BIO-5**, **BIO-10**, and **BIO-11** will address potential impacts to herpetofauna.

BIO-12 **Pre-construction herpetofauna survey.** Conduct a preconstruction survey for reptile and amphibian species within 30 days of ground disturbance. Non-listed reptile and amphibian species discovered during the preconstruction survey will be captured and relocated outside of the project impact area. Listed reptile and amphibian species discovered during the preconstruction survey will be reported to the CDFW and USFWS, and coordination on relocation of these species will be dependent on the results of formal consultation described in **BIO-10**.

The project could result in the potential loss or degradation of bat roosting habitat. The project includes the proposed removal of existing trees around the periphery of the Rancho Maria Golf Course, which could potentially be utilized by several bat species as roosting habitat. Recommended measures **BIO-1**, **BIO-5**, **BIO-10**, and **BIO-13** will address potential impacts to bats.

BIO-13 **Pre-construction bat roosting survey**. Conduct a preconstruction survey for roosting bats within 30 days of disturbance to existing trees. If roosting bats are present, appropriate avoidance measures should be developed to ensure that no impacts to roosting bats occur.

The project could result in the potential loss or degradation of special-status mammal habitat as well as direct mortality of individual mammal species the project includes the proposed removal of habitat suitable for special status mammal species including American badger and San Diego desert woodrat. Direct impacts to special-status mammals may occur as a result of ground disturbing activities. Recommended measures **BIO-1**, **BIO-5**, and **BIO-14** will address potential impacts to mammals.

BIO-14 **Pre-construction mammal survey**. A preconstruction survey for special-status mammals shall be conducted within 30 days of ground disturbance. If special-status mammals are present, appropriate avoidance measures should be developed to ensure that no impacts to special-status mammals occur.

The project could result in the potential loss or degradation of vernal pool fairy shrimp habitat as well as direct mortality of individuals. The project includes the proposed removal of aquatic habitat suitable for vernal pool fairy shrimp. Direct impacts to vernal pool fairy shrimp may occur as a result of ground disturbing activities. Recommended measures **BIO-1**, **BIO-5**, **BIO-10**, and **BIO-15** will address potential impacts to branchiopods.

BIO-15 **Protocol branchiopod surveys**. Protocol surveys for listed branchiopods (i.e., vernal pool fairy shrimp) shall occur in the suitable habitat within the project site impact footprint. The protocol surveys shall be consistent with the Survey Guidelines for the Listed Large Branchipods (USFWS 2015b). Based on the results of the focused survey, consultation with the USFWS may be necessary (**BIO-10**).

5.5 Nesting Birds

The project could result in direct impacts including the mortality, injury, or loss of nests, eggs, or nestlings for several bird species. During 2015-2016 field surveys completed by Dudek, a total of nine raptor nests were identified within the BSA. As currently designed, the project will remove one raptor nest in the northeastern portion of the project site. Raptor nesting surveys completed in 2016 found no active raptor nests within the BSA; however, several raptor species were identified including red-tailed hawk, white-tailed kite, northern harrier, golden eagle, Cooper's hawk, red-shouldered hawk, turkey vulture, great horned owl, and American kestrel. No raptor species were identified to be nesting within the project site and no breeding behavior (e.g., transporting nesting material or prey items) was observed. Additional common and special-status birds may also nest within the BSA. To ensure adequate protection of potential bird nesting activities during construction activities, recommended measures include **BIO-5**, and **BIO-16**.

BIO-16 **Nesting Birds.** In compliance with the Migratory Bird Treaty Act and the California Fish and Game Code, a preconstruction survey for nesting birds shall be conducted within 30 days of ground disturbance activities associated with construction or grading that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region). The applicant shall have weekly surveys conducted between 8:00am and 12:00pm by a qualified biologist (e.g., experienced with the nesting behavior of bird species of the region). The intent of the surveys would be

to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the construction zone or within 300 feet (500 feet for raptors) of the construction zone. The surveys shall be timed such that the last survey is concluded no more than one week prior to initiation of clearance/construction work. If ground disturbance activities are delayed, then additional pre-construction surveys will be conducted such that no more than one week will have elapsed between the last survey and the commencement of ground disturbance activities.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors), or at a distance deemed sufficient by the qualified biologist, shall be postponed or halted until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barrier, and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur. The results of the survey, and any avoidance measures taken, shall be submitted to the County and CDFW/USFWS within 30 days of completion of the pre-construction surveys and/or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

5.6 Jurisdictional Waters

As detailed in the Wetland Delineation and Jurisdictional Determination for the Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2018b), wetland and non-wetland water features under the jurisdiction of the USACE, RWQCB, CDFW, and County will require mitigation to ensure no net loss of these protected resources. Impacts to wetland and riparian habitat is considered a significant impact and mitigation would be required to reduce the impact to less than significant. Implementation of mitigation included in the Wetland Delineation and Jurisdictional Determination, would compensate for permanent and temporary impacts to jurisdictional resource. Recommended measures **BIO-1, BIO-17** and **BIO-18** will address potential impacts to jurisdictional waters.

BIO-17 **Jurisdictional Waters Mitigation.** Mitigation for impacts to USACE, RWQCB, CDFW, and County jurisdictional waters and streambed will be accomplished either on-site, off-site, or via an off-site in-lieu fee program within the Santa Maria River watershed, potentially through the Santa Barbara Land Trust. Appropriate mitigation

ratios will be applied to the impacts to result in no net loss of jurisdictional streambed as a result of the proposed project. Due to the wetland and non-wetland water features being comprised largely of non-native species, a 1:1 mitigation ratio is proposed to compensate for permanent impacts to USACE, RWQCB, CDFW, and County jurisdictional wetlands. Riparian vegetation is comprised primarily of native species and therefore, a 2:1 mitigation ratio is proposed to compensate for permanent impacts to CDFW and County jurisdictional riparian habitat. A 1:1 mitigation ratio is proposed to compensate for temporary impacts to USACE, RWQCB, CDFW, and County jurisdictional waters/ riparian vegetation. If mitigation will be provided on-site, the mitigation will be installed during and immediately following construction of the project. Monitoring of the mitigation will take place during installation as well as for 5 years following project completion.

BIO-18 Creek Setback. Per the OCP (County 2004), DevStd KS21-4, a minimum 50-foot setback from the top of the creek bank will be necessary and shall be delineated by a fence and plantings of native shrubs and trees.

5.7 Fuel Management Activities

The Santa Barbara County Fire Department recommends a 100-foot vegetation fuel management zone from structures. Guidelines for fuel modification and vegetation management have been outlined in The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (2016). The types of management will vary based on the slope, aspect, terrain, and density of vegetation. The guidelines provided in The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (2016) include:

1. ***General:*** *Vegetation management planting and thinning shall be implemented within a 100-foot vegetation management zone from residential structures adjacent to open natural areas intended for fire risk reduction. Individual residential lots shall incorporate low fuel and / or fire resistant plants into the design of the rear yard landscape.*
2. ***Residential graded pad-ornamental landscape zone:*** *The graded pad may consist of lawn and irrigated ground cover and shrubs and is considered an "irrigated zone," equivalent to a "total clear zone." Trees in this zone must be ten feet or more away from the residence.*
3. ***Landform graded slope zone (irrigated):*** *This zone includes the landform graded slopes created with grading of the residential pads. This zone shall begin a transition from the ornamental landscape to a more natural, but*

generally low fuel, landscape. This zone shall not include high fuel plants such as Chamise, Black sage, California sage and Coyote bush. Screen planting shall be arranged in a mosaic manner that limits the possibility of creating a fuel ladder into trees. This zone may extend beyond the graded slope into undisturbed open areas to allow for a naturalistic edge to be created that is visually harmonious with the larger natural setting. Irrigation shall be limited to the created slope and not extend into the undisturbed areas.

4. ***Fuel Reduction Zone in natural areas:*** *Thinning of vegetation if necessary at the interface between the open space and the landform graded slope zone may include removal of dead wood and downed limbs in trees. Shrub thinning shall be done to transition smoothly into the adjoining undisturbed native plant community. Avoid contrived pruning and shaping to maintain a natural appearance.*

5. ***Tree Trimming:*** *Limbing-up of native trees (only if required to protect existing trees within the 100-foot fuel modification zone) and other incidental exotic trees such as eucalyptus or pine shall be up to six feet for Coast Live Oak and eight feet for all other species. Small oaks shall be limbed up to 1/3 of the tree's height.*

Locations of proposed structures have not been identified, thus quantities of impacts cannot be calculated. However, impacts will include vegetation removal, vegetation thinning, tree trimming, and removal of dead wood and downed tree limbs. Fuel management activities will focus on the removal and control of non-native species to the greatest extent feasible in order to meet the overall goals of the fuel management program. Native species trimming and removal, when determined to be necessary, will consist of the minimum amount necessary to meet the overall goals of the fuel management program. Annual fuel management (i.e., mowing, thinning, etc.) is expected to occur by the end of May each year. No ground disturbance is anticipated to occur in association with the on-going fuel management program.

BIO-19 **Fuel Management Activities and Mitigation.** Mitigation measures for impacts to native grasslands, wetland and riparian vegetation, coastal scrub, and protected trees from implementation of fuel management activities should include **BIO-1** and **BIO-5**.

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APPENDIX A

~~Purple Needle Grass~~ Native Grassland Assessment Data Sheets

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 52°F
10% cloud coverage

Start Time: 8:47
End Time: 9:02

Transect #: PNGG-01

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	Erodium	75	FESPER	2	ERESET	5	AVEBAR	5	1	18	3
R ~~5m~~ 2m	Erodium	50	FESPER	2	DEIFAS	1	AVEBAR	2	11	25	30
L ~~10m~~ 4m	Erodium	60	FESPER	7	ERESET	2	AVEBAR	2	11	25	20
15 m											
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100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 52°F
8% cloud coverage

Start Time: 9:08
End Time: 9:26

Transect #: PNGG-02

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	65	ERESET	1	FESPER	10	AVEBAR	7	1	3	20
5 m	Erodium	70	ERESET	3	FESPER	5	AVEBAR	2	6	20	27
10 m	Erodium	55	DEIFAS	1	VISSAT	7	AVEBAR	5	10	35	10
15 m	Erodium	60	BRODIA	7	FESPER	2	AVEBAR	2	13	25	7
20 m	Erodium	75	BRODIA	3	FESPER	2	AVEBAR	5	5	15	7
25 m	Erodium	65	BRODIA	5	FESPER	2	AVEBAR	12	6	40	2
30 m											
35 m											
40 m											
45 m											
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DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 54°F
0% Cloud coverage
4 mph winds (avg)

Start Time: 9:34
End Time: 9:45

Transect #: PNGG-03

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	Erodium	40					AVEBAR	20	4	60	0
5 m	Erodium	50	BRODIA	5	FESPER	5	AVEBAR	50	∅	—	0
10 m	Erodium	45	BRODIA	30	FESPER	1	AVEBAR	20	5	35	5
15 m	Erodium	5	BRODIA	5	VISSAT	5	AVEBAR	25	7	60	0
20 m											
25 m											
30 m											
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95 m											
100 m											

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DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 60°F
0% cloud
6 mph winds (avg)

Start Time: 9:50
End Time: 10:01

Transect #: PNGG-04A

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	Erodium	10	FESPER	2	BRODIA	25	AVEBAR	50	1	20	0
5 m	Erodium	20	FESPER	3	BRODIA	7	AVEBAR	20	8	60	0
10 m	Erodium	70	RUMCRI	5	BRODIA	10	AVEBAR	7	2	15	5
15 m	Erodium	65	FESPER	2	BRODIA	15	AVEBAR	5	6	35	5
20 m	Erodium	60	RUMACE	5	BRODIA	15	AVEBAR	20	3	35	5
25 m											
30 m											
35 m											
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45 m											
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65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 60° F
0% cloud coverage
6mph wind

Start Time: 10:06
End Time: 10:19

Transect #: PNGG-04B

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	Erodium	30	BRODIA	10	FESPER	10	AVEBAR	35	4	20	0
5 m	Erodium	35	FESPER	10	RUMACE	10	AVEBAR	5	13	55	2
10 m	Erodium	15	FESPER	3	RUMACE	30	BROMAD	2	8	55	2
15 m	Erodium	7	BRODIA	10	RUMACE	25	AVEBAR	65	Ø	–	5
20 m	Erodium	10	BRODIA	70	RUMACE	10	HYPGLA	3	4	20	7
25 m											
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100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 63° F
0% cloud
5 mph winds

Start Time: 10:28
End Time: 10:53

Transect #: PNGG-05A

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	85	RUMACE	7	BRODIA	5	AVEBAR	7	2	10	7
5 m	Erodium	60	—	—	ERESET	5	AVEBAR	5	14	60	3
10 m	Erodium	55	LYSARV	1	—	—	—	—	16	55	20
15 m	Erodium	55	DEIFAS	5	ERESET	7	FESPER	2	9	30	25
20 m	Erodium	30	HYPGLA	30	CORFIL	5	AVEBAR	10	11	50	10
25 m	Erodium	55	GRICAM	5	HYPGLA	5	AVEBAR	5	13	40	10
30 m	Erodium	40	—	—	—	—	AVEBAR	15	8	30	15
35 m	Erodium	45	BRODIA	3	HYPGLA	5	AVEBAR	10	14	65	2
40 m	Erodium	80	ACMGLA	5	BRODIA	3	AVEBAR	5	6	30	7
45 m	Erodium	70	BRODIA	3	HYPGLA	5	AVEBAR	5	10	35	10
50 m	Erodium	60	AMS	30	BRODIA	15	AVEBAR	3	∅	—	0
55 m	Erodium	60	—	—	BRODIA	5	AVEBAR	15	3	10	10
60 m											
65 m											
70 m											
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85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 63°F
5% cloud cover
5 mph winds

Start Time: 10:58
End Time: 11:16

Transect #: PNGG-05B

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	Erodium	60	BRODIA	10	PLALAN	10	AVEBAR	3	1	25	2
5 m	Erodium	65	BRODIA	30	HYPGLA	2	AVEBAR	10	∅	–	2
10 m	Erodium	90	BRODIA	5	BROHOR	1	AVEBAR	2	∅	–	10
15 m	Erodium	60	FESMIC	30	BROHOR	1	AVEBAR	1	6	15	3
20 m	Erodium	60	BRODIA	10	—	—	AVEBAR	35	∅	–	2
25 m	Erodium	80	BRODIA	10	FESPER	2	AVEBAR	10	1	15	5
30 m	Erodium	60	BRODIA	2	HYPGLA	15	AVEBAR	5	4	25	15
35 m	Erodium	65	BRODIA	15	DEIFAS	5	AVEBAR	5	8	30	10
40 m	Erodium	35	HYPGLA	15	RUMACE	7	AVEBAR	5	2	10	30
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100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64° F
10% cloud cover
10 mph wind

Start Time: 11:19
End Time: 11:31

Transect #: PNGG-05C

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	45	BRODIA	10	FESPER	5	AVEBAR	5	10	40	15
5 m	Erodium	55	HYPGLA	3	BRODIA	10	AVEBAR	10	4	25	25
10 m	Erodium	50	HYPGLA	30	ERESET	7	AVEBAR	20	Ø	–	15
15 m	Erodium	65	HYPGLA	15	ERESET	23	AVEBAR	15	Ø	–	25
20 m	Erodium	65	HYPGLA	10	FESPER	3	AVEBAR	5	13	45	5
25 m	Erodium	55	HYPGLA	2	FESPER	15	BRODIA	5	3	25	8
30 m											
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Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64°F
5% cloud coverage
10 mph wind

Start Time: 11:36
End Time: 11:46

Transect #: PNGG-06

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	Erodium	45	FESPER	10	HYPGLA	5	AVEBAR	5	6	35	7
~~8~~ m 2	Erodium	25	BRODIA	7	HYPGLA	5	FESPER	2	12	55	12
~~10~~ m 4	Erodium	45	BRODIA	5	HYPGLA	3	AVEBAR	5	4	32	10
~~15~~ m 6	Erodium	40	RUMACE	13	HYPGLA	10	BRODIA	5	4	35	12
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64°F
15% cloud cover
10 mph winds

Start Time: 11:48
End Time: 11:56

Transect #: PNGG-07

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	75	BRODIA	8	HYPGLA	10	AVEBAR	5	1	12	2
~~5 m~~ 2	Erodium	55	BRODIA	35	FESPER	12	RUMACE	5	1	3	2
~~10 m~~ 4	Erodium	45	HYPGLA	10	FESPER	7	BRODIA	3	7	45	3
~~15 m~~ 6	Erodium	45	HYPGLA	7	FESPER	5	BRODIA	2	5	50	0
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64°F
5% cloud cover
10 mph winds

Start Time: 11:59
End Time: 12:06

Transect #: PNGG-08

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	Erodium	50	AVEBAR	13	FESPER	7	BRODIA	3	5	40	5
~~5~~ m 2	Erodium	60	AVEBAR	25	FESPER	3	BRODIA	10	5	20	10
~~10~~ m 4	Erodium	65	AVEBAR	20	FESPER	5	BRODIA	10	~~6~~	–	12
~~15~~ m 6	Erodium	75	AVEBAR	7	FESPER	7	BRODIA	3	5	20	12
~~20~~ m 8	Erodium	65	AVEBAR	10	HYPGLA	2	BRODIA	7	5	30	7
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task:** Native Grassland Assessment **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64° F
5% cloud coverage
7 mph wind

Start Time: 12:09
End Time: 12:15

Transect #: PNGG-09

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	40	AVEBAR	5	FESPER	12	BRODIA	7	1	12	25
5 m	Erodium	40	HYPGLA	20	AVEBAR	5	BRODIA	5	10	40	30
10 m	Erodium	65	AVEBAR	7	BRODIA	10	ERESET	5	1	10	12
15 m											
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 65°F
8 mph wind

Start Time: 12:18
End Time: 12:23

Transect #: PNGG-10

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	Erodium	40	AVEBAR	3	—	—	—	—	13	45	20
~~5~~ m 2	Erodium	40	AVEBAR	12	BRODIA	5	ERESET	5	2	8	40
~~10~~ m 4	Erodium	35	AVEBAR	5	BRODIA	5	ERESET	7	2	7	50
~~15~~ m 6	Erodium	50	AVEBAR	5	FESPER	2	ERESET	5	1	12	35
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 65°F
8mph wind
5% cloud coverage

Start Time: 12:26
End Time: 12:35

Transect #: PNGG-11

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	Erodium	55	BRODIA	5	AVEBAR	3	FESPER	2	9	45	7
5 m	Erodium	55	HYPGLA	10	BRODIA	5	ERESET	10	5	20	20
10 m	Erodium	30	AVEBAR	8	HYPGLA	5	DEIFAS	1	22	70	5
15 m	Erodium	25	HYPGLA	5	AVEBAR	5	DEIFAS	1	16	35	40
20 m	Erodium	20	*BOCC	10	HYPGLA	7	FESPER	5	5	25	55
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 65°F
5% cloud cover

Start Time: 12:53
End Time: 12:59

Transect #: PNGG-12

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	Erodium	5	BRODIA	35	—	—	—	—	2	20	40
~~5~~ m 2	Erodium	10	ATRSEM	5	BRODIA	20	—	—	7	50	20
~~10~~ m 4	Erodium	15	AVEBAR	7	BRODIA	45	—	—	Ø	—	40
~~15~~ m 6	Erodium	10	BRODIA	35	SONOLE	1	—	—	1	15	40
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task:** Native Grassland Assessment **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66° F
5% cloud coverage

Start Time: 1:53
End Time: 2:03

Transect #: PNGG-13

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	AVEBAR	55	BRODIA	15	CARPYC	7	BRANIG	10	4	15	0
5 m	AVEBAR	15	BRODIA	40	Erodium	10	CARPYC	2	7	20	15
10 m	BRODIA	55	LYSARV	7	BACPIL	10	DISSPI	15	2	12	0
15 m											
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
0% cloud cover
1 mph wind

Start Time: 2:05
End Time: 2:11

Transect #: PNGG-14

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	BRODIA	45	Erodium	8	CARPYC	2	DISSPI	12	5	35	0
5 m	BRODIA	40	Erodium	35	AVEBAR	5	DISSPI	5	2	12	10
10 m	Erodium	18	BRODIA	60	AVEBAR	7	DISSPI	5	4	30	5
15 m											
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
10mph wind

Start Time: 2:16
End Time: 2:24

Transect #: PNGG-15A

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	AVEBAR	35	BRODIA	35	Endium	12	DISSPI	5	2	25	5
~~5~~ m 2	AVEBAR	45	BRODIA	35	Endium	10	DISSPI	10	1	5	0
~~10~~ m 4	AVEBAR	40	BRODIA	35	Endium	5	DISSPI	10	3	12	0
~~15~~ m 6	AVEBAR	10	BRODIA	30	Endium	40	DISSPI	10	4	15	5
~~20~~ m 8	AVEBAR	7	BRODIA	40	BROHOR	7	DISSPI	5	7	30	20
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
4mph wind
15% cloud cover

Start Time: 2:27
End Time: 2:36

Transect #: PNGG-15B

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	AVEBAR	20	BRODIA	55	DISSPI	3	Erodium	5	4	30	0
5 m	AVEBAR	10	BRODIA	30	BACPIL	45	—	—	4	7	15
10 m	BRODIA	40	AVEBAR	35	DISSPI	2	Erodium	10	5	20	0
15 m	BRODIA	55	AVEBAR	10	CARPYC	7	DISSPI	7	7	12	10
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
4 mph wind

Start Time: 2:40
End Time: 2:48

Transect #: PNGG-15C

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	AVEBAR	20	BRODIA	60	DISSPI	5	Erodium	2	2	20	0
5 m	AVEBAR	8	DISSPI	20	BRODIA	5	Erodium	7	2	20	50
10 m	AVEBAR	15	DISSPI	10	BRODIA	10	Erodium	7	10	40	10
15 m	AVEBAR	15	DISSPI	10	BRODIA	50	BROHOR	5	5	35	0
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
4mph wind

Start Time: 3:05
End Time: 3:16

Transect #: PNGG-16

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
L 0 m	AVEBAR	50	BRODIA	10	Erodium	15	—	—	6	30	10
~~5~~ m 2	AVEBAR	20	BRODIA	20	Erodium	15	—	—	9	35	10
~~10~~ m 4	AVEBAR	15	BRODIA	5	Erodium	30	—	—	5	35	15
~~15~~ m 6	AVEBAR	30	BRODIA	20	Erodium	15	CARPYC	10	2	30	0
~~20~~ m 8	AVEBAR	50	BRODIA	15	DISSPI	5	Erodium	10	6	20	0
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 66°F
10 mph wind
10% cloud coverage

Start Time: 3:35
End Time: 3:43

Transect #: PNGG-17

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	AVEBAR	10	BROHOR	10	Erodium	5	CARPYC	2	14	75	0
5 m	Erodium	80	BROHOR	5	AVEBAR	2	—	—	11	15	5
10 m	Erodium	40	BROHOR	5	DISSPI	12	AVEBAR	15	8	30	0
15 m	AVEBAR	25	BROHOR	7	BACPIL	10	Erodium	5	11	55	0
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64°F
20% cloud cover
8 mph wind

Start Time: 3:51
End Time: 3:59

Transect #: PNGG-18

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	AVEBAR	25	Erodium	50	DISSPI	15	—	—	4	10	0
~~5~~ m 2	AVEBAR	65	BROHOR	2	DISSPI	10	—	—	14	30	0
~~10~~ m 4	AVEBAR	30	Erodium	40	DISSPI	7	—	—	9	25	0
~~15~~ m 6	BRODIA	25	DISSPI	15	Erodium	45	AVEBAR	10	4	10	3
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/23/16

Biologists: Heather Moine
Amanda Shoemaker

Weather Conditions: 64°F
6 mph wind

Start Time: 4:09
End Time: 4:15

Transect #: PN GG-19

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG%
R 0 m	AVEBAR	35	BROHOR	10	CARPYC	10	—	—	7	40	5
5 m	AVEBAR	65	Erodium	10	BROHOR	10	FESMIC	7	2	12	5
10 m	AVEBAR	45	CARPYC	15	BRODIA	15	BROHOR	3	5	20	5
15 m											
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Drawfield

Weather Conditions: 64°F
0% cloud cover
2 mph winds

Start Time: 11:47 am
End Time: 12:00 pm

Transect #: PNGG-20

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	Litter/BG %
L 0 m	AVEBAR	15	BROHOR	3	FESMYU	5	BRODIA	5	7	10	65
R 5 m	AVEBAR	5	Erodium	30	FESMYU	2	BRODIA	15	10	15	45
L 10 m	AVEBAR	2	Erodium	35	DISSPI	7	BRODIA	50	3	6	0
R 15 m	" "	10	" "	15	BACPIL	5	" "	55	9	15	0
L 20 m	" "	10	" "	25			" "	25	11	45	0
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task:** Native Grassland Assessment **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Drum Field

Weather Conditions: 67°F
0% cloud cover
2 mph wind

Start Time: 12:06 pm
End Time: 12:30 pm

Transect #: PNGG - 21 A

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
0 m R	FESMYU	20	Erodium	10	AVEBAR	5	BRODIA	3	8	12	50
5 m	" "	7	" "	10	" "	7			17	25	51
10 m	" "	5	" "	20	" "	30	BROHOR	5	8	15	25
15 m	FESPER	7	" "	61	" "	10			4	8	7
20 m	FESMYU	3	" "	75	" "	20	BRODIA	2	5	12	0
25 m	" "	5	" "	55	" "	20			4	20	5
30 m	DISSPI	7	" "	30	" "	30	" "	10	8	35	0
35 m	" "	7	" "	25	" "	50	RUMACE	13	0	0	5
40 m			" "	5	" "	35	" "	50	1	5	10
45 m	FESMYU	5	" "	5	" "	30	" "	25	6	20	15
50 m	DISSPI	15	BRODIA	15	" "	25	" "	30	5	15	
55 m	" "	35	" "	45	" "	10			2	10	5
60 m	" "	25	FESMYU	5	" "	40	" "	35	0	0	5
65 m	" "	10	Erodium	35	" "	15	" "	20	8	20	7
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfield

Weather Conditions: 68 °F
0% cloud cover
2 mph wind

Start Time: 12:35 pm
End Time: 12:58 pm

Transect #: PNGG-2\B

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	AVE BAR	55	Erodium	15	BRO DIA	5			8	25	5
5 m	" "	10	" "	7	BRO HOR	10	DISSPI	5	4	10	0
10 m	" "	60	" "	20	BRO DIA	5	" "	10	2	7	0
15 m	" "	40	" "	25	FES MYU	5	RUMACE	20	8	15	0
20 m	" "	40	" "	10	" "	5	" "	35	0	0	15
25 m	" "	15	" "	30	BRO DIA	7	" "	30	0	0	20
30 m	" "	40	" "	40	" "	5	" "	5	2	7	5
35 m	" "	55	" "	20	FES MYU	5			8	15	5
40 m	" "	50	" "	20	BRO DIA	10			0	0	20
45 m	" "	80	" "	15	" "	5	CROSET	1	0	0	0
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfield

Weather Conditions: 68 ° F
0 % cloud cover
2 mph wind

Start Time: 1:01 pm
End Time: 1:18 pm

Transect #: PN GG- 22

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	%
R 0 m	AVE BAR	20	DIS SPI	30	Erodium	40	CARPYC	1	3	10	0
5 m	" "	40	" "	35	" "	15	QUE AGR	2	8	12	0
10 m	" "	7			" "	55	BRODIA	15	11	20	5
15 m	" "	15	" "	20	" "	35	" "	15	7	15	0
20 m	" "	40	" "	10	" "	25	" "	15	5	10	5
25 m	" "	60	" "	15	" "	10	" "	5	5	10	5
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfield

Weather Conditions: 68°F
0 % cloud cover
2 mph wind

Start Time: 1:21 pm
End Time: 1:31 pm

Transect #: PNGG-23

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	AVEBAR	45	Erodium	25	BRODIA	5	DISSPI	10	5	15	0
5 m	" "	40	" "	40	" "	5			6	15	0
10 m	" "	10	" "	55	" "	5	HYPGLA	5	19	20	5
15 m	" "	10	" "	65	" "	7	" "	5	7	15	0
20 m	" "	5	" "	55	" "	10	" "	5	8	15	5
25 m	" "	10	" "	55	" "	10	FESMYU	2	7	12	15
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task:** Native Grassland Assessment **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfield

Weather Conditions: 66°F
0 % cloud cover
2 mph wind

Start Time: 1:33 pm
End Time: 1:41 pm

Transect #: PNGG-24

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	AVE BAR	35	Erodium	20	BRO DIA	20	DISSPI	10	3	10	5
5 m	" "	15	" "	40	" "	10	" "	20	4	15	10
10 m	" "	15	" "	35	" "	10	" "	5	4	15	20
15 m	" "	40	" "	25	" "	5	" "	10	6	20	5
20 m	" "	25	" "	35	" "	5	FES MYU	3	3	8	24
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfeld

Weather Conditions: 66° F
0% cloud cover
3 mph wind

Start Time: 1:44 pm
End Time: 1:50 pm

Transect #: PNGG-25

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	AVEBAR	40	BRODIA	30	BROHOR	5			12	15	10
5 m	" "	5	" "	10	ERODIUM	50			7	20	15
10 m	" "	30			" "	35			11	20	15
15 m											
20 m											
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task:** Native Grassland Assessment **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Drumfield

Weather Conditions: 66°F
0 % cloud cover
3 mph wind.

Start Time: 1:55 pm
End Time: 2:02 pm

Transect #: PNGG - 26

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	Erodium	40	AVEBAR	20	BODIA	10	HYPGLA	5	4	15	10
5 m	" "	35	" "	15	" "	5	" "	5	3	10	30
10 m	" "	40	" "	10	" "	5	" "	10	9	25	10
15 m	" "	10	" "	15	" "	10	" "	20	11	40	5
20 m	" "	35	" "	25	" "	5	" "	10	5	15	10
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfield

Weather Conditions: 66°F
0 % cloud cover
3 mph wind

Start Time: 2:15 pm
End Time: 2:25 pm

Transect #: PNGG - 27

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	Erodium	20	AVEBAR	30	RUMACE	15	BRODIA	15	7	15	5
5 m	" "	15	" "	30	" "	10	" "	15	11	25	5
10 m	" "	15	" "	30			" "	20	8	35	0
15 m	" "	15	" "	40	DISSPT	20	" "	15	4	15	0
20 m	" "	2			FESPER	3			2	5	90
25 m	BRODIA	5			HYPGLA	10	RUMACE	5	13	80	0
30 m	Erodium	5	" "	35	FESPER	25	" "	10	10	15	0
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes: @ 20 m → deer resting area!

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfeld

Weather Conditions: 65°F
0% cloud cover
3 mph wind

Start Time: 2:31 pm
End Time: 2:40 pm

Transect #: PNGG-28

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
R 0 m	BROHOR	10	AVECAR	15	Erodium	35	FESPER	5	6	30	5
5 m	BRODIA	10	" "	15	" "	35	" "	10	5	15	15
10 m	" "	5	" "	10	" "	70	" "	5	0	0	10
15 m	" "	15	" "	20	" "	45			3	15	5
20 m	BROHOR	25	" "	20	" "	40	BRODIA	10	0	0	5
25 m											
30 m											
35 m											
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

DUDEK

Project: 9387 – Rancho Maria Estates **Task: Native Grassland Assessment** **Date:** 5/27/2016

Biologists: Heather Moine
Andrea Dransfeld

Weather Conditions: 65°F
0 % cloud cover
3 mph wind

Start Time: 2:48 pm
End Time: 2:59 pm

Transect #: PNGG-29

Quad #	Species #1	%	Species #2	%	Species #3	%	Species #4	%	*Stipa pulchra* count	*Stipa pulchra* %	BG %
L 0 m	Erodium	50	AVEBAR	30	BROMIA	5	BROHOR	5	4	8	2
5 m	" "	10	" "	70	" "	10			5	10	0
10 m	" "	65	" "	15					2	10	10
15 m	" "	10	" "	70	" "	5			6	15	0
20 m	" "	5	" "	75			FESPER	5	8	15	0
25 m			" "	67	" "	10	DISSPI	15	2	8	0
30 m	" "	35	" "	42	" "	5	" "	15	3	8	0
35 m	" "	25	" "	50	" "	10	" "	5	6	15	0
40 m											
45 m											
50 m											
55 m											
60 m											
65 m											
70 m											
75 m											
80 m											
85 m											
90 m											
95 m											
100 m											

Notes:

APPENDIX B

Photographic Documentation

APPENDIX B
Photographic Documentation

Photo 1 Central eastern portion of the project site, facing northeast (12/16/15)	Photo 2 Southeastern portion of the project site, facing north (12/16/15)
Photo 3 Northeastern portion of the project site, facing east (12/16/15)	Photo 4 Northeastern portion of the project site, facing south (6/22/16)

Photo 5 Open space in the southeastern of the project site, facing northwest (12/16/15)

Photo 6 Northwestern portion of the project site, facing north (3/8/16)

Photo 7 Central western portion of the project site, facing east (4/20/16)

Photo 8 Northwestern portion of the project site, facing south (4/20/16)

Photo 9 California tiger salamander breeding pond, facing north (12/16/15)

Photo 10 California tiger salamander breeding pond, facing southwest (12/16/15)

Photo 11 *Dudleya blochmaniae* ssp. *blochmaniae* (4/22/16)

Photo 12 *Dudleya blochmaniae* ssp. *blochmaniae* habitat, facing northeast (4/22/16)

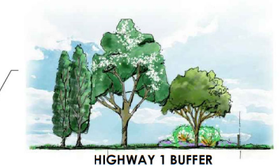
INTENTIONALLY LEFT BLANK

APPENDIX C

Conceptual Landscape Design

RESIDENTIAL STREETSCAPE

PROJECT ENTRY

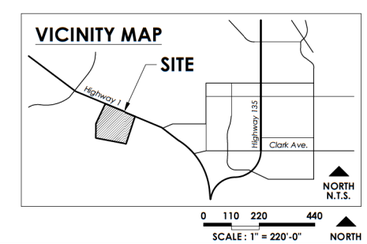


HIGHWAY 1 BUFFER

FARMLAND BUFFER PLANTING & TRAIL

RIPARIAN AREA

OPEN SPACE INTERFACE
FUEL MODIFICATION ZONE



❑ CONCEPTUAL LANDSCAPE DESIGN (OVERALL SITE PLAN)

THE NEIGHBORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE
DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9695 // www.pleinairedg.com

L-1

❑ PRELIMINARY LANDSCAPE DESIGN (WILLOW CREEK)

H.O.A. MAINTAINED LANDSCAPE

RESIDENTIAL / NATURAL OPEN SPACE TRANSITIONS
- Toyon - Heteromeles arbutifolia
- Elderberry - Sambucus californica
- Santa Barbara Ceanothus - Ceanothus impressus
- McMinn Manzanita - Arctostaphylos (var. species)
- Deer Grass - Muhlenbergia rigens
- Coyote Bush (prostrate) - Baccharis pilularis 'Twin Peaks'
- California Lilac - Ceanothus (var. species)

HIGHWAY 1 BUFFER PLANTING
- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
- California Lilac - Ceanothus (var. species)
- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica
- Bay Laurel - Laurus nobilis

FARMLAND BUFFER
- Pacific Wax Myrtle - Myrica californica
- Catalina Cherry - Prunus lyonii
- Coast Live Oak - Quercus agrifolia
- Catalina ironwood - Lyonothamnus floribundus
- Toyon - Heteromeles arbutifolia
- Lemonade Berry - Rhus integrifolia
- California Lilac - Ceanothus (var. species)
- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica

RIPARIAN AREA

TREES
- Northern California Black Walnut - Junglans hindsii
- Arroyo Willow - Salix lasiolepis
- California Sycamore - Platanus acerfolia

SHRUBS
- Douglas' Mugwort - Artemisia douglasiana
- Creeping Spike Rush - Eleocharis macrostachya
- Irisleaf Rush - Juncus xiphioides
- Orange Bush Monkeyflower - Mimulus auranticus
- Ladies Tobacco - Pseudognaphalium californicum
- Hummingbird Sage - Salvia spathacea
- Blue Elderberry - Sambucus nigra ssp. caerulea
- Western Blue-eyed Grass - Sisyrinchium bellum
- California Hedgenettle - Stachys bullata

SEED MIXES
- Common Yarrow - Achiella millefolium
- Douglas' Mugwort - Artemisia douglasiana
- Tarragon - Artemisia dracuncutus
- Mexican Whorled Milkweed - Asclepias fascicularis
- Saltgrass - Distichlis spicata
- Sticky Cinquefoil - Drymocallis glandulosa
- Beardless Wildrye - Elymus triticoides
- Sky Lupine - Lupinus nanus
- Branching Phacelia - Phacelia ramosissima
- Purple Needlegrass - Stipa pulchra
- Western Vervain - Verbena lasiostachys

STREET TREES

COMMUNITY STREET TREES
- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia (disease resistant)
- Chinese Pistache - Pistacia chinensis
- Canary Island Pines - Pinus canariensis
- California Pepper - Schinus molle
- Monterey Cypress - Cupressus macrocarpa
- Olive Tree - Olea europa

NEIGHBORHOOD STREET TREES
- Chinese Flame Tree - Koelreuteria paniculata
- Marina Strawberry Tree - Arbutus marina
- Evergreen Elm - Ulmus parvifolia
- Chinese Pistache - Pistachia chinensis
- Brazillian Pepper - Schinus terebinthefolius
- Monterey Cypress - Cupressus macrocarpa
- London Plane Tree - Platanus acerfolia

SMALL OPEN SPACE TREES

- Monterey Cypress - Cupressus macrocarpa
- Island Stone Pine - Pinus Pinea
- California Buckeye - Aesculus californica
- California Black Walnus - Juglans californica
- Pacific Wax Myrtle - Myrica californica

LARGE SPECIMEN TREES

- Coast Live Oak - Quercus agrifolia
- California Sycamore - Platanus recemosa
- Valley Oak - Quercus lobata
- Cork Oak - Quercus suber
- California Pepper - Schinus molle

LARGE OPEN SPACE TREES

- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia
- California Pepper - Schinus molle
- California Sycamore - Platanus recemosa
- Torrey Island Pine - Pinus torreyana
- Digger Pine - Pinus sabiniana
- Canary Island Pine - Pinus canariensis
- Catalina Ironwood - Lyonothamnus floribundus
- Cajeput Tree - Melaleuca leucadendron
- Cork Oak - Quercus suber
- Valley Oak - Quercus lobata

NATURAL OPEN SPACE

TO REMAIN UNDISTURBED

FUEL MODIFICATION ZONE

TO REMAIN UNDISTURBED

HOUSE LOTS

ACCESS ROAD

PER FIRE REGULATIONS

ROAD

THE NEIGHBORHOOD OF WILLOW CREEK

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9695 // www.pleinairedg.com

❑ PRELIMINARY LANDSCAPE DESIGN (HIDDEN CANYON)

H.O.A. MAINTAINED LANDSCAPE

RESIDENTIAL / NATURAL OPEN SPACE TRANSITIONS
- Toyon - Heteromeles arbutifolia
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- McMinn Manzanita - Arctostaphylos (var. species)
- Deer Grass - Muhlenbergia rigens
- Coyote Bush (prostrate) - Baccharis pilularis 'Twin Peaks'
- California Lilac - Ceanothus (var. species)

HIGHWAY 1 BUFFER PLANTING
- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
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- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica
- Bay Laurel - Laurus nobilis

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STREET TREES

COMMUNITY STREET TREES
- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia (disease resistant)
- Chinese Pistache - Pistacia chinensis
- Canary Island Pines - Pinus canariensis
- California Pepper - Schinus molle
- Monterey Cypress - Cupressus macrocarpa
- Olive Tree - Olea europa

NEIGHBORHOOD STREET TREES
- Chinese Flame Tree - Koelreuteria paniculata
- Marina Strawberry Tree - Arbutus marina
- Evergreen Elm - Ulmus parvifolia
- Chinese Pistache - Pistachia chinensis
- Brazillian Pepper - Schinus terebinthefolius
- Monterey Cypress - Cupressus macrocarpa
- London Plane Tree - Platanus acerfolia

SMALL OPEN SPACE TREES
- Monterey Cypress - Cupressus macrocarpa
- Island Stone Pine - Pinus Pinea
- California Buckeye - Aesculus californica
- California Black Walnus - Juglans californica
- Pacific Wax Myrtle - Myrica californica

LARGE OPEN SPACE TREES
- Coast Live Oak - Quercus agrifolia
- London Plane tree - Platanus acertolia
- California Pepper - Schinus molle
- California Sycamore - Platanus recemosa
- Torrey Island Pine - Pinus torreyana
- Digger Pine - Pinus sabiniana
- Canary Island Pine - Pinus canariensis
- Catalina Ironwood - Lyonothamnus floribundus
- Cajeput Tree - Melaleuca leucadendron
- Cork Oak - Quercus suber
- Valley Oak - Quercus lobata

LARGE SPECIMEN TREES
- Coast Live Oak - Quercus agrifolia
- California Sycamore - Platanus recemosa
- Valley Oak - Quercus lobata
- Cork Oak - Quercus suber
- California Pepper - Schinus molle

NATURAL OPEN SPACE
TO REMAIN UNDISTURBED

FUEL MODIFICATION ZONE
TO REMAIN UNDISTURBED

HOUSE LOTS

ACCESS ROAD
PER FIRE REGULATIONS

ROAD

THE NEIGHBORHOOD OF HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

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Cork Oak

Torrey Island Pine

London Plane Tree

California Sycamore

Brisbane Box

Canary Island Pine

Brazilian Pepper Tree

Catalina Ironwood

Coast Live Oak

Italian Stone Pine

Valley Oak

Evergreen Elm

Indian Laurel

Olive Tree

Cajeput Tree

Marina Strawberry Tree

Monterey Cypress

Chinese Pistache

California Pepper Tree

Chinese Flame Tree

Digger Pine

Bay Laurel

California Buckeye

Chinese Flame Tree

Catalina Cherry

California Black Walnut

Dwarf Maiden Grass

Ceanothus

Flannel Bush

Elderberry

Lemonade berry

Pacific Wax Myrtle

Toyon

Mcminnn Manzanita

Ceanothus Impressus

Purple Fountain Grass

Blonde Ambition Grama Grass

Red Firecracker Plant

Deer Grass

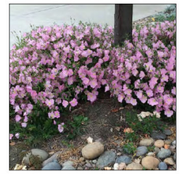
Blue Oat Grass

Brakelight Red Aloe

Coffeeberry

White Gaura

Little John Bottle Brush


Mexican Evening Primrose

Pine Muhly

Trailing Rosemary

Cayote Brush

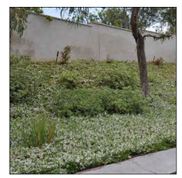
Stalked Bulbine

Hidcote English Lavender

Anchor Bay Ceanothus

Hardy Yellow Ice Plant

Pacific Mist Manzanita


Trailing Myoporum

Plumetastic Pink Muhly

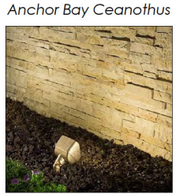
Hameln Fountain Grass

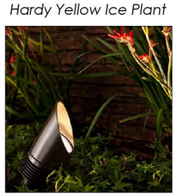
White Carpet Rose

Open Fencing

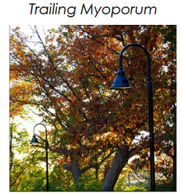
Golf Course Walking Trail

Wrought Iron Fencing


Flood Up-light


Accent Up-light

Street Lighting

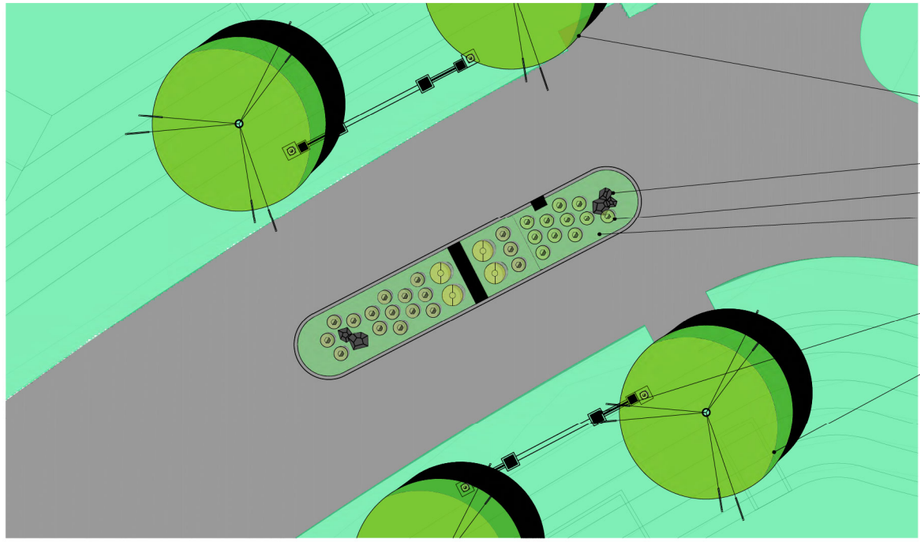

Street Lighting

❑ **PRELIMINARY LANDSCAPE DESIGN (PLANT IMAGERY)**

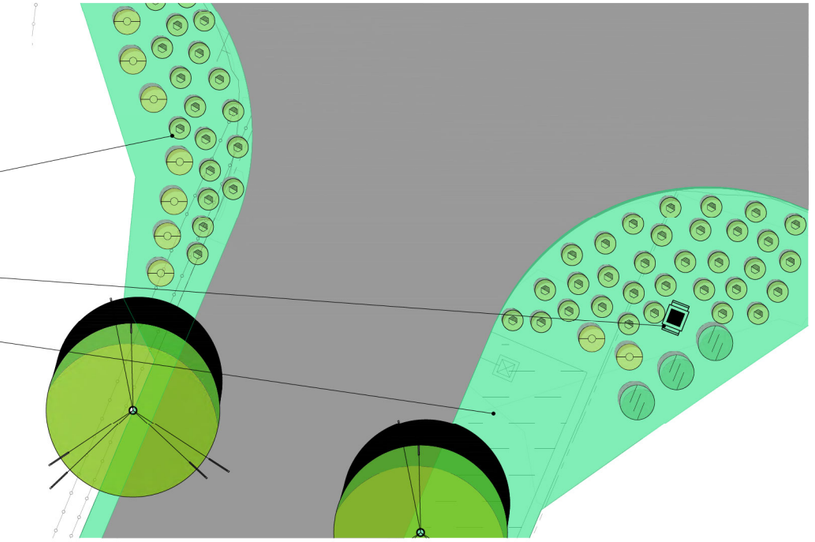
THE NEIGHBORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE
DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9695 // www.pleinairedg.com



CANOPY TREE
DECORATIVE BOULDERS
SMALL FLOWERING SHRUBS
FLOWERING GROUNDCOVER
MONUMENTATION
LARGE OPEN SPACE TREE
BIOSWALE



❑ ENLARGEMENT 'A' - WILLOW CREEK ENTRY GATE & MONUMENTATION

0 4 8 16
SCALE : 1/8" = 1'-0"
NORTH

❑ ENLARGEMENT 'B' - WILLOW CREEK HWY 1 MONUMENTATION

0 4 8 16
SCALE : 1/8" = 1'-0"
NORTH

H.O.A. MAINTAINED LANDSCAPE

HIGHWAY 1 BUFFER PLANTING
- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
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- Coffeeberry - Rhamnus californica
- Bay Laurel - Laurus nobilis

LARGE OPEN SPACE TREES

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- California Buckeye - Aesculus californica
- California Black Walnus - Juglans californica
- Pacific Wax Myrtle - Myrica californica

FLOWERING GROUNDCOVERS

- Red Firecracker Plant - Russelia equisetiformis
- Trailing Rosemary - Rosmarinus officinalis 'Prostratus'
- Trailing Myoporum - Myoporum parvifolium 'Putah Creek'
- Anchor Bay Ceanothus - Ceanothus 'Anchor Bay'
- Pacific Mist Manzanita - Arctostaphylos 'Pacific Mist'

FLOWERING SHRUBS

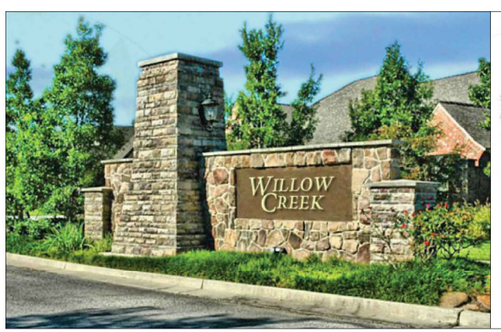
- Hidcote English Lavender - Lavandula angustifolia 'Hidcote'
- Hardy Yellow Ice Plant - Delosperma nubigenum
- Stalked Bulbine - Bulbine frutescens
- Little John Bottle Brush - Callistemon viminalis 'Little John'
- White Carpet Rose - Rosa x 'Noaschnee'
- White Gaura - Gaura lindheimeri
- Brakelights Red Yucca - Hesperaloe parviflora 'Brakelights'
- Mexican Evening Primrose - Oenothera berlandieri

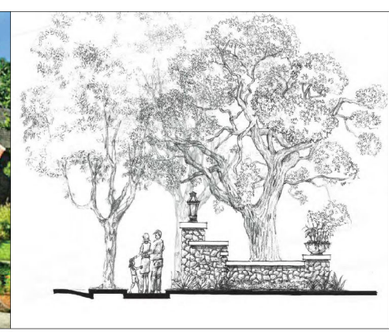
ORNAMENTAL GRASSES

- Blonde Ambition Blue Grama - Bouteloua gracilis 'Blonde Ambition'
- Blue Oat Grass - Helictotrichon sempervirens
- Hameln Dwarf Fountain Grass - Pennisetum alopecuroides 'Hameln'
- Purple Fountain Grass - Pennisetum setaceum 'Rubrum'
- Pine Muhly - Muhlenbergia dubia
- Deer Grass - Muhlenbergia rigens
- Plumetastic Pink Muhly - Muhlenbergia capillaris 'Plumetastic'
- Dwarf Maiden Grass - Miscanthus sinensis 'Adagio'
- Dwarf Mat Rush - Lomandra longifolia 'Breeze'

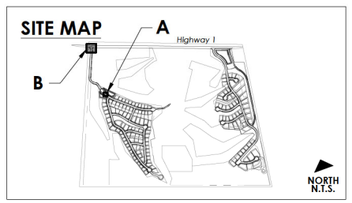
SCREEN SHRUBS

- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
- California Lilac - Ceanothus (var. species)
- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica





❑ MONUMENTATION CONCEPTS

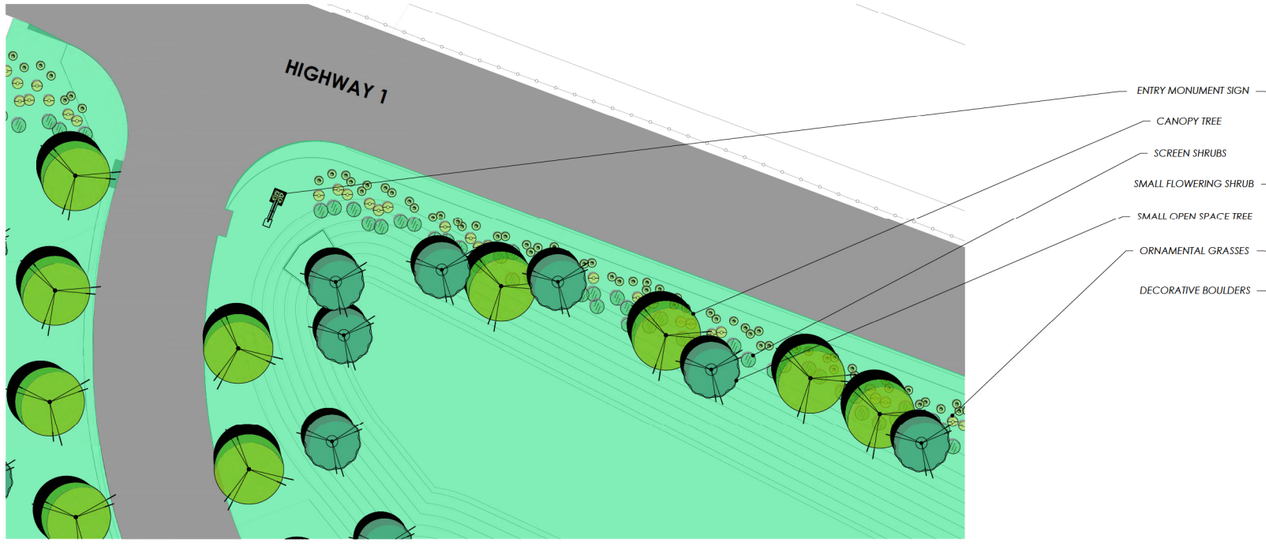


❑ PRELIMINARY LANDSCAPE DESIGN (WILLOW CREEK ENLARGEMENTS)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

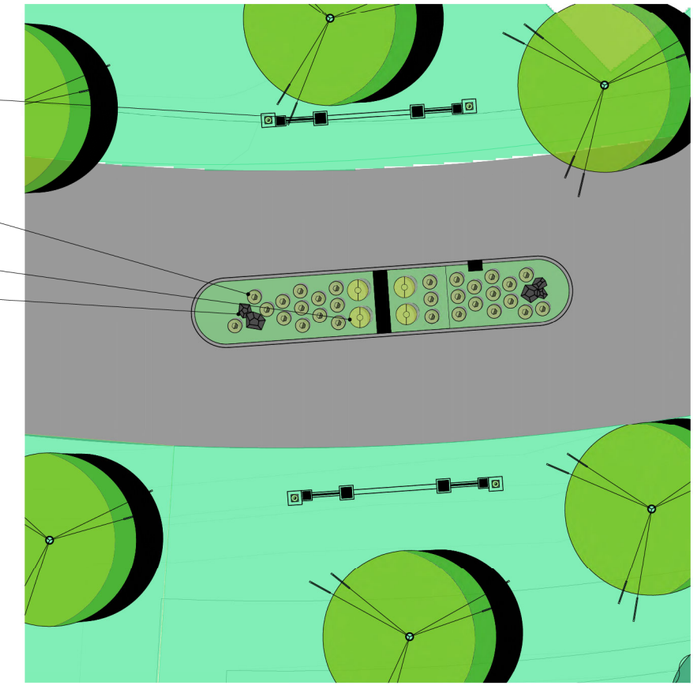
ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE
DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9695 // www.pleinairedg.com



❑ ENLARGEMENT 'C' - HIDDEN CANYON HWY 1 MONUMENTATION

0 10 20 40
SCALE : 1" = 20'-0"
NORTH



❑ ENLARGEMENT 'D' - HIDDEN CANYON ENTRY GATE & MONUMENTATION

0 4 8 16
SCALE : 1/8" = 1'-0"
NORTH

H.O.A. MAINTAINED LANDSCAPE

HIGHWAY 1 BUFFER PLANTING
- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
- California Lilac - Ceanothus (var. species)
- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica
- Bay Laurel - Laurus nobilis

LARGE OPEN SPACE TREES

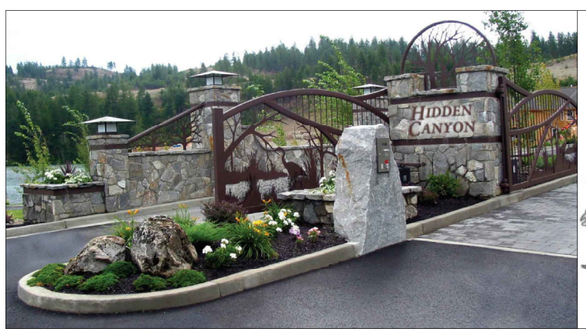
- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia
- California Pepper - Schinus molle
- California Sycamore - Platanus recemosa
- Torrey Island Pine - Pinus torreyana
- Digger Pine - Pinus sabiniana
- Canary Island Pine - Pinus canariensis
- Catalina Ironwood - Lyonothamnus floribundus
- Cajeput Tree - Melaleuca leucadendron
- Cork Oak - Quercus suber
- Valley Oak - Quercus lobata

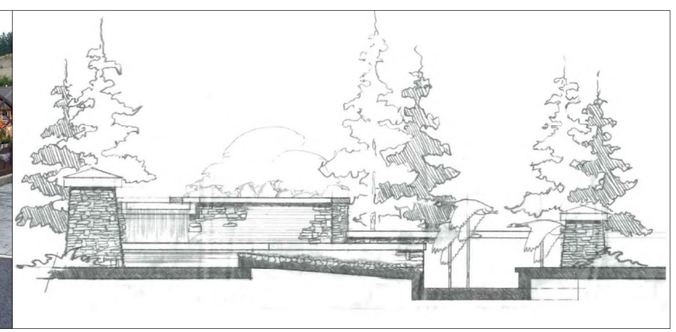
SMALL OPEN SPACE TREES

- Monterey Cypress - Cupressus macrocarpa
- Island Stone Pine - Pinus Pinea
- California Buckeye - Aesculus californica
- California Black Walnus - Juglans californica
- Pacific Wax Myrtle - Myrica californica

FLOWERING GROUNDCOVERS

- Red Firecracker Plant - Russelia equisetiformis
- Trailing Rosemary - Rosmarinus officinalis 'Prostratus'
- Trailing Myoporum - Myoporum parvifolium 'Putah Creek'
- Anchor Bay Ceanothus - Ceanothus 'Anchor Bay'
- Pacific Mist Manzanita - Arctostaphylos 'Pacific Mist'





❑ MONUMENTATION CONCEPTS

ORNAMENTAL GRASSES

- Blonde Ambition Blue Grama - Bouteloua gracilis 'Blonde Ambition'
- Blue Oat Grass - Helictotrichon sempervirens
- Hameln Dwarf Fountain Grass - Pennisetum alopecuroides 'Hameln'
- Purple Fountain Grass - Pennisetum setaceum 'Rubrum'
- Pine Muhly - Muhlenbergia dubia
- Deer Grass - Muhlenbergia rigens
- Plumetastic Pink Muhly - Muhlenbergia capillaris 'Plumetastic'
- Dwarf Maiden Grass - Miscanthus sinensis 'Adagio'
- Dwarf Mat Rush - Lomandra longifolia 'Breeze'

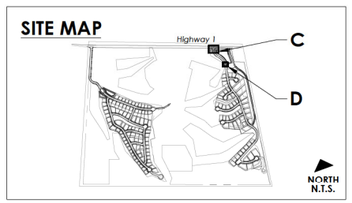
FLOWERING SHRUBS

- Hidcote English Lavender - Lavandula angustifolia 'Hidcote'
- Hardy Yellow Ice Plant - Delosperma nubigenum
- Stalked Bulbine - Bulbine frutescens
- Little John Bottle Brush - Callistemon viminalis 'Little John'
- White Carpet Rose - Rosa x 'Noaschnee'
- White Gaura - Gaura lindheimeri
- Brakelights Red Yucca - Hesperaloe parviflora 'Brakelights'
- Mexican Evening Primrose - Oenothera berlandieri

SCREEN SHRUBS

- Toyon - Heteromeles arbutifolia
- Flannel Bush - Fremontodendron californica
- Lemonade Berry - Rhus integrifolia
- California Lilac - Ceanothus (var. species)
- McMinn Manzanita - Arctostaphylos (var. species)
- Coffeeberry - Rhamnus californica

SITE MAP



❑ PRELIMINARY LANDSCAPE DESIGN (HIDDEN CANYON ENLARGEMENTS)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
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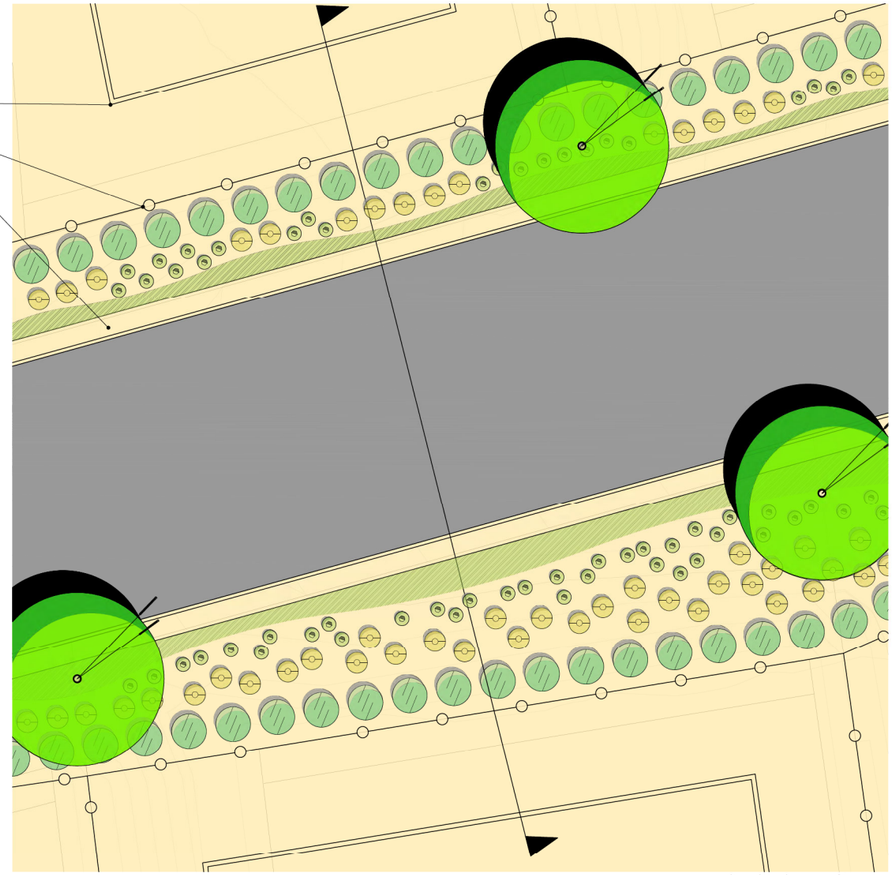


❑ ENLARGEMENT 'A' - HIDDEN CANYON INTERIOR ROAD TYP. PLANTING PLAN

0 4 8 16
SCALE : 1/8" = 1'-0"
NORTH

STREET TREE

COMMUNITY STREET TREES
- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia (disease resistant)
- Chinese Pistache - Pistacia chinensis
- Canary Island Pines - Pinus canariensis
- California Pepper - Schinus molle
- Monterey Cypress - Cupressus macrocarpa
- Olive Tree - Olea europa

NEIGHBORHOOD STREET TREES
- Chinese Flame Tree - Koelreuteria paniculata
- Marina Strawberry Tree - Arbutus marina
- Evergreen Elm - Ulmus parvifolia
- Chinese Pistache - Pistachia chinensis
- Brazillian Pepper - Schinus terebinthefolius
- Monterey Cypress - Cupressus macrocarpa
- London Plane Tree - Platanus acerfolia

MEDIUM SHRUBS

- Blonde Ambition Blue Grama - Bouteloua gracilis 'Blonde Ambition'
- Blue Oat Grass - Helictotrichon sempervirens
- Chinese Fountain Grass - Pennisetum orientalis
- Pine Muhly - Muhlenbergia dubia
- Little John Bottle Brush - Callistemon viminalis 'Little John'
- Dwarf Mat Rush - Lomandra longifolia 'Breeze'
- Stalked Bulbine - Bulbine frutescens
- Lavandula x intermedia 'Alba' - White Lavandin

FOUNDATION SHRUBS

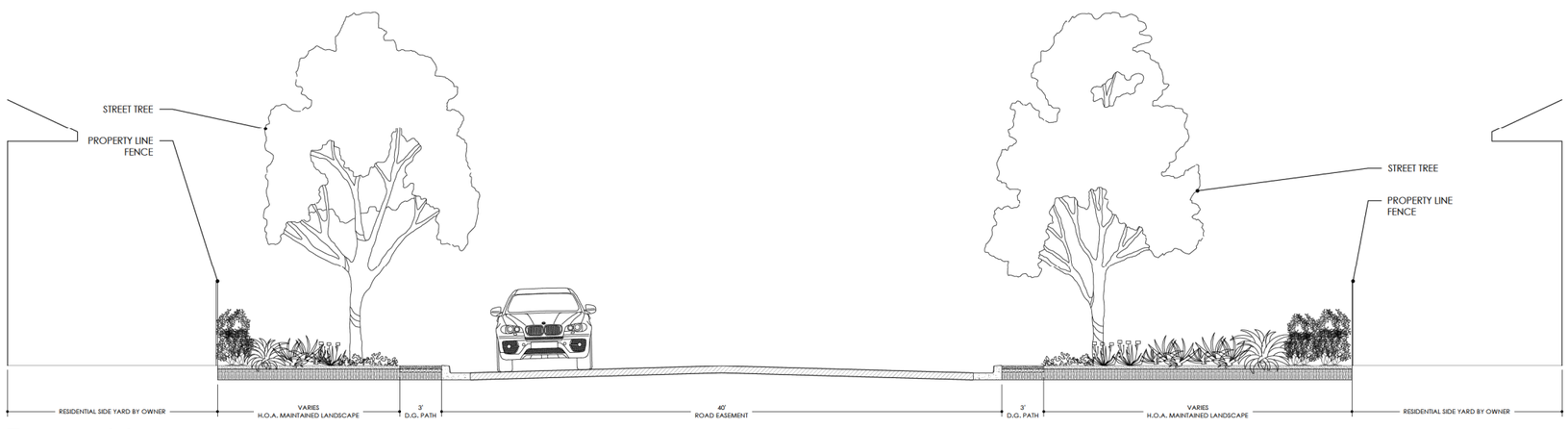
- *Karl Foerster Reed Grass - Calamagrostis x acutiflora 'Karl Foerster'*
- *Concha ceanothus - Ceanothus 'Concha'*
- *McMinn Manzanita - Arctostaphylos*
- Coffeeberry - Rhamnus californica 'Mound San Bruno'
- Purple Fountain Grass - Pennisetum setaceum 'Rubrum'
- *Iceberg Rose - Rosa 'Iceberg'*
- *Tusacan Blue Rosemary - Rosmarinus officinalis 'Tuscan Blue'*
- *Snow White New Zealand Tea Tree - Leptospermum s. 'Snow White'*
- *Fortnight Lily - Dietes bicolor*
- White Gaura - Gaura lindheimeri
- *Dwarf Yedda Hawthorn - Rhaphiolepis umbellata 'Minor'*
- Plumetastic Pink Muhly - Muhlenbergia capillaris 'Plumetastic'
- *Silver Sheen Kohuhu - Pittosporum tenuifolium 'Silver Sheen'*
- *Marjorie Channon Kohuhu - Pittosporum tenuifolium 'Marjorie Channon'*
- *Yellow Wave Flax - Phormium 'Yellow Wave'*
- *Dark Delight Flax - Phormium 'Dark Delight'*
- *Golf Ball Kohuhu - Pittosporum tenuifolium 'Golf Ball'*

SMALL SHRUBS

- Hidcote English Lavender - Lavandula angustifolia 'Hidcote'
- Hardy Yellow Ice Plant - Delosperma nubigenum
- Brakelights Red Yucca - Hesperaloe parviflora 'Brakelights'
- Mexican Evening Primrose - Oenothera berlandieri
- *Blue Chalksticks - Senecio serpens*
- *Cassa Blue Flax Lily - Dianella caerulea 'Cassa Blue'*
- *Variegated Flax Lily - Dianella tasmanica 'Variegata'*
- *Autumn Moor Grass - Sesleria Autumnalis*
- *Berkeley Sedge - Carex divulsa*
- *Siskiyou Blue Fescue - Fetuca 'Siskiyou Blue'*
- *Yarrow - Achillea millefolium*
- *Germander - Teucrium chamaedrys*

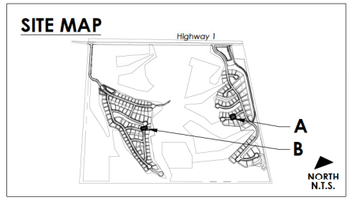
GROUNDCOVER

- White Carpet Rose - Rosa x 'Noaschnee'
- Anchor Bay Ceanothus - Ceanothus 'Anchor Bay'
- Pacific Mist Manzanita - Arctostaphylos 'Pacific Mist'
- Bearberry Cotoneaster - Cotoneaster dammeri 'Lowfast'
- Trailing Myoporum - Myoporum parvifolium 'Putah Creek'
- Coyote Bush - Baccharis pilularis 'Twin Peaks'



❑ SECTION 'A'

N.T.S.



❑ PRELIMINARY LANDSCAPE DESIGN (HIDDEN CANYON INTERIOR STREETS)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
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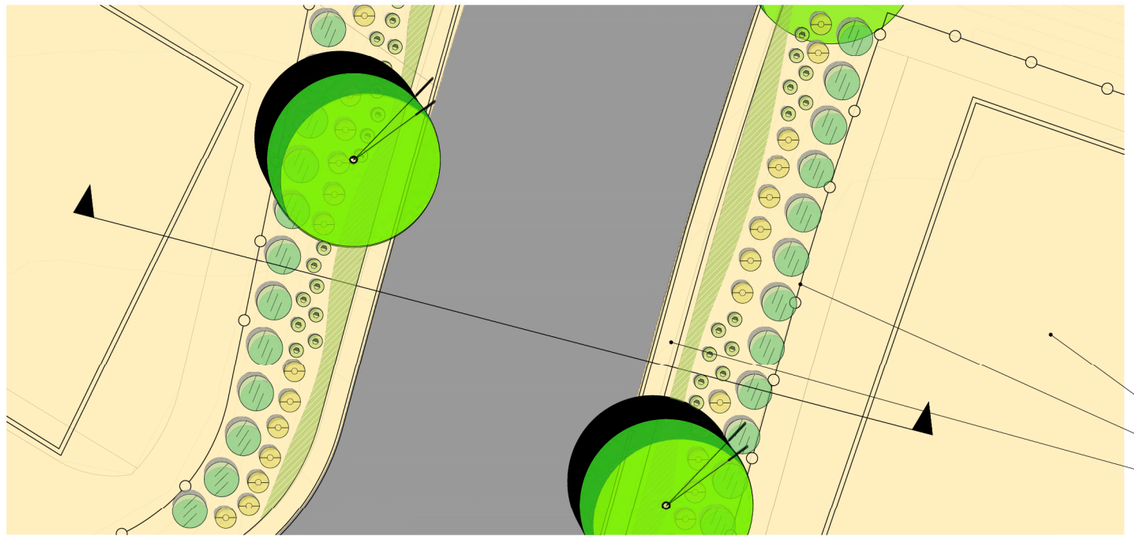
805.349.9695 // www.pleinairedg.com



❑ ENLARGEMENT 'B' - WILLOW CREEK INTERIOR ROAD TYP. PLANTING PLAN

0 4 8 16
SCALE : 1/8" = 1'-0"
NORTH

STREET TREE

COMMUNITY STREET TREES
- Coast Live Oak - Quercus agrifolia
- London Plane Tree - Platanus acerfolia (disease resistant)
- Chinese Pistache - Pistacia chinensis
- Canary Island Pines - Pinus canariensis
- California Pepper - Schinus molle
- Monterey Cypress - Cupressus macrocarpa
- Olive Tree - Olea europa

NEIGHBORHOOD STREET TREES
- Chinese Flame Tree - Koelreuteria paniculata
- Marina Strawberry Tree - Arbutus marina
- Evergreen Elm - Ulmus parvifolia
- Chinese Pistache - Pistachia chinensis
- Brazillian Pepper - Schinus terebinthefolius
- Monterey Cypress - Cupressus macrocarpa
- London Plane Tree - Platanus acerfolia

FOUNDATION SHRUBS

- *Karl Foerster Reed Grass - Calamagrostis x acutiflora 'Karl Foerster'*
- *Concha ceanothus - Ceanothus 'Concha'*
- *McMinn Manzanita - Arctostaphylos*
- Coffeeberry - Rhamnus californica 'Mound San Bruno'
- Purple Fountain Grass - Pennisetum setaceum 'Rubrum'
- *Iceberg Rose - Rosa 'Iceberg'*
- *Tusacan Blue Rosemary - Rosmarinus officinalis 'Tuscan Blue'*
- *Snow White New Zealand Tea Tree - Leptospermum s. 'Snow White'*
- *Fortnight Lily - Dietes bicolor*
- White Gaura - Gaura lindheimeri
- *Dwarf Yedda Hawthorn - Rhaphiolepis umbellata 'Minor'*
- Plumetastic Pink Muhly - Muhlenbergia capillaris 'Plumetastic'
- *Silver Sheen Kohuhu - Pittosporum tenuifolium 'Silver Sheen'*
- *Marjorie Channon Kohuhu - Pittosporum tenuifolium 'Marjorie Channon'*
- *Yellow Wave Flax - Phormium 'Yellow Wave'*
- *Dark Delight Flax - Phormium 'Dark Delight'*
- *Golf Ball Kohuhu - Pittosporum tenuifolium 'Golf Ball'*

MEDIUM SHRUBS

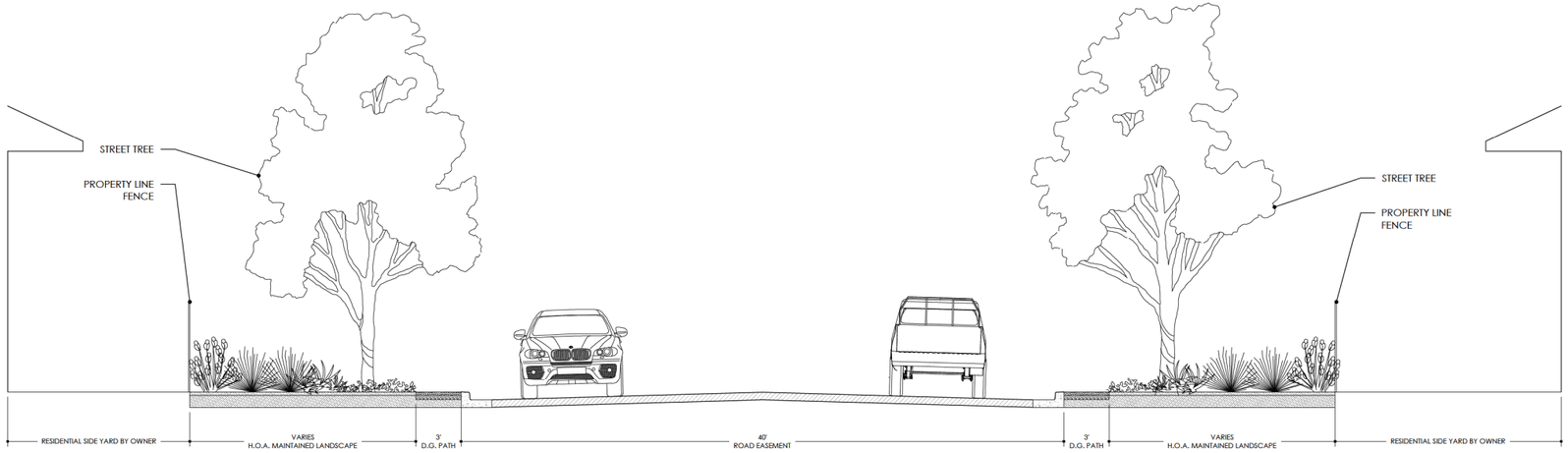
- Blonde Ambition Blue Grama - Bouteloua gracilis 'Blonde Ambition'
- Blue Oat Grass - Helictotrichon sempervirens
- Chinese Fountain Grass - Pennisetum orientalis
- Pine Muhly - Muhlenbergia dubia
- Little John Bottle Brush - Callistemon viminalis 'Little John'
- Dwarf Mat Rush - Lomandra longifolia 'Breeze'
- Stalked Bulbine - Bulbine frutescens
- Lavandula x intermedia 'Alba' - White Lavandin

SMALL SHRUBS

- Hidcote English Lavender - Lavandula angustifolia 'Hidcote'
- Hardy Yellow Ice Plant - Delosperma nubigenum
- Brakelights Red Yucca - Hesperaloe parviflora 'Brakelights'
- Mexican Evening Primrose - Oenothera berlandieri
- *Blue Chalksticks - Senecio serpens*
- *Cassa Blue Flax Lily - Dianella caerulea 'Cassa Blue'*
- *Variegated Flax Lily - Dianella tasmanica 'Variegata'*
- Autumn Moor Grass - Sesleria Autumnalis
- *Berkeley Sedge - Carex divulsa*
- *Siskiyou Blue Fescue - Fetuca 'Siskiyou Blue'*
- *Yarrow - Achillea millefolium*
- *Germander - Teucrium chamaedrys*

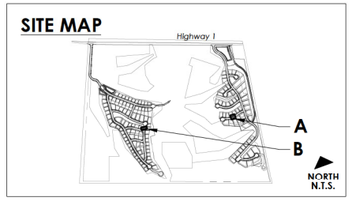
GROUNDCOVER

- White Carpet Rose - Rosa x 'Noaschnee'
- Anchor Bay Ceanothus - Ceanothus 'Anchor Bay'
- Pacific Mist Manzanita - Arctostaphylos 'Pacific Mist'
- Bearberry Cotoneaster - Cotoneaster dammeri 'Lowfast'
- Trailing Myoporum - Myoporum parvifolium 'Putah Creek'
- Coyote Bush - Baccharis pilularis 'Twin Peaks'



❑ SECTION 'B'

N.T.S.



❑ PRELIMINARY LANDSCAPE DESIGN (WILLOW CREEK INTERIOR STREETS)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
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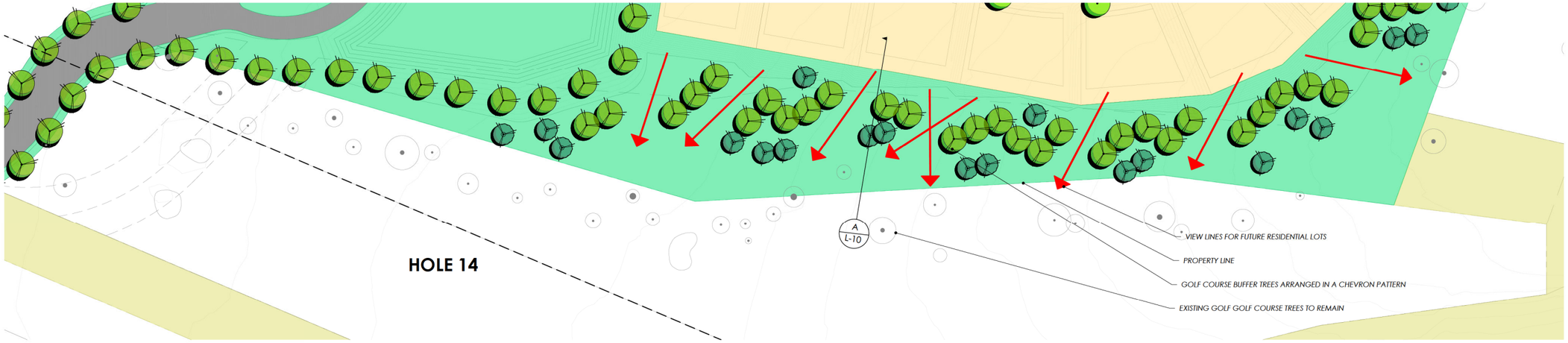

❑ GOLF COURSE BUFFER - B

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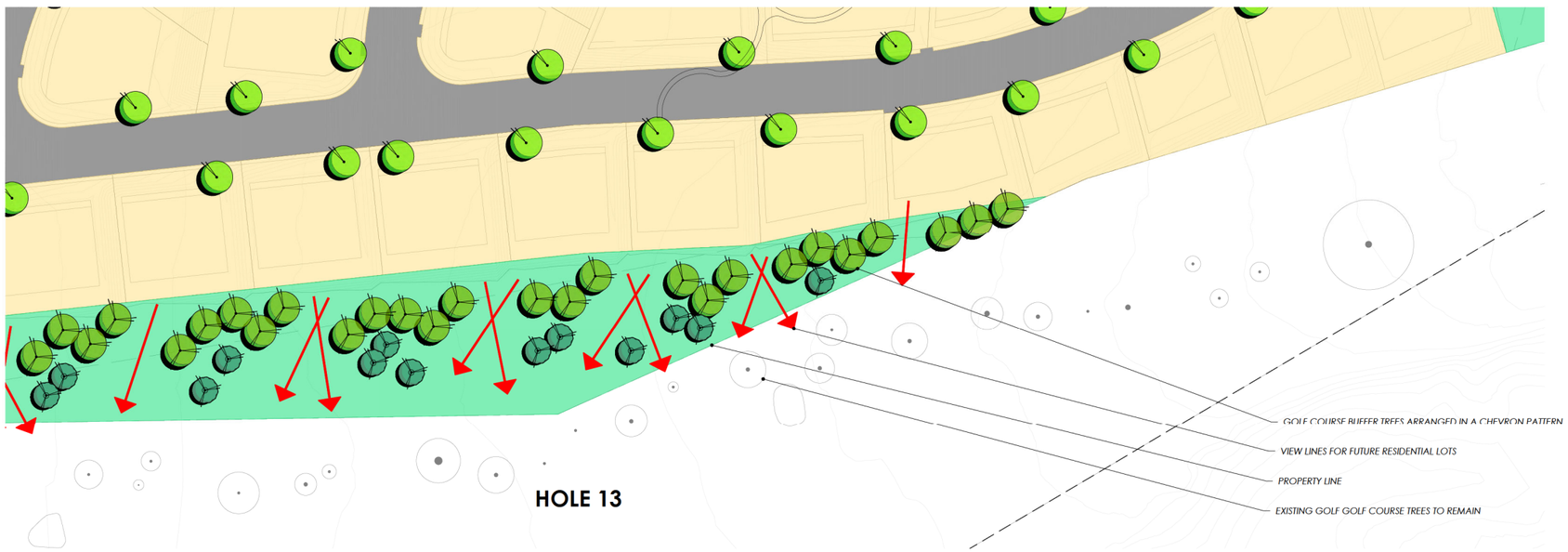
SCALE : 1" = 40'-0"
NORTH



GOLF COURSE BUFFER TREE
Canary Island Pine - Pinus canariensis
Digger Pine - Pinus sabiniana
Aleppo Pine - Pinus halepensis
Stone Pine - Pinus pinea

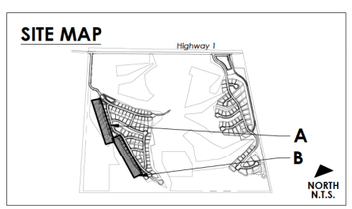
SMALL OPEN SPACE TREES
Eastern Redbud - Cercis canadensis
Samuel Summer Southern Magnolia - Magnolia grandiflora 'Samuel Sommer'
California Buckeye - Aesculus californica
Purple Leaf Plum - Prunus cerasifera

H.O.A. MAINTAINED LANDSCAPE

❑ GOLF COURSE BUFFER - B

0 20 40 80
SCALE : 1" = 40'-0"
NORTH

SITE MAP



❑ PRELIMINARY LANDSCAPE DESIGN (GOLF COURSE BUFFER)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEIN AIRE
DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
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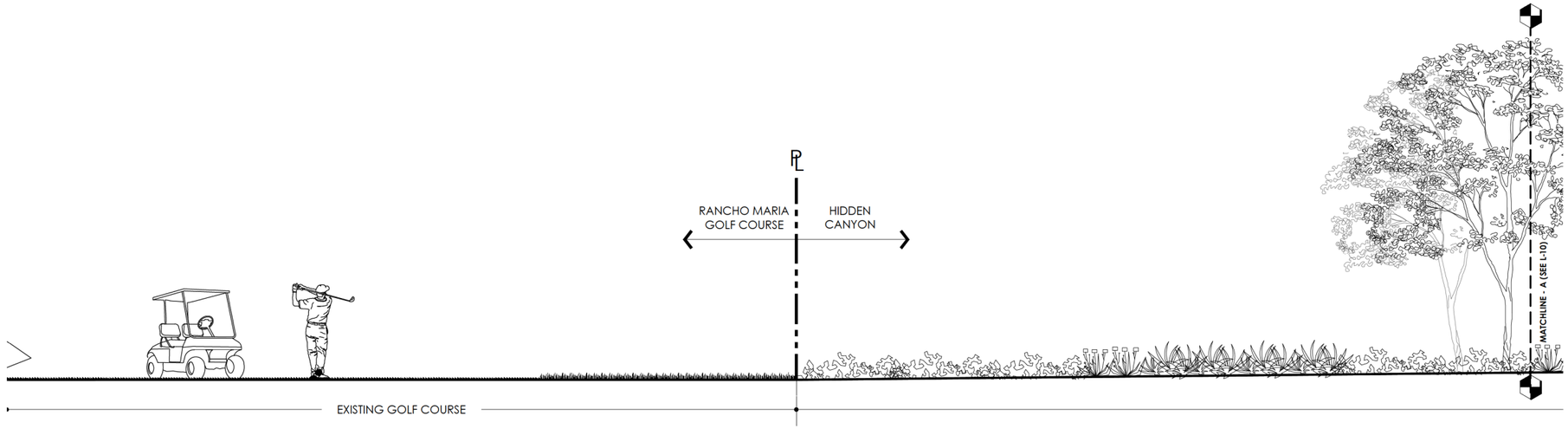


❑ **GOLF COURSE BUFFER SECTION - A**

N.T.S.

❑ **TYPICAL GOLF COURSE BUFFER SECTION - B**

N.T.S.

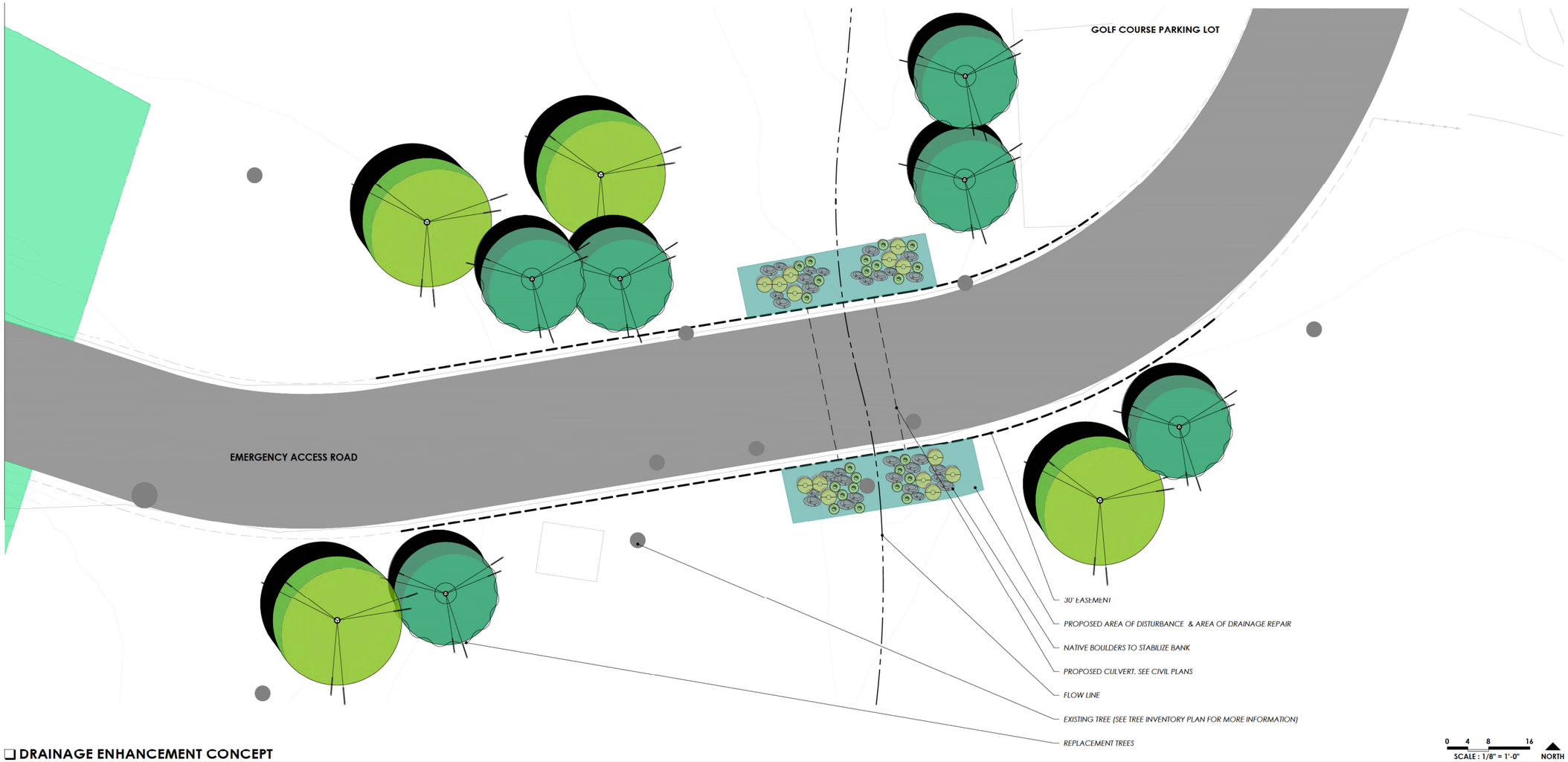
❑ PRELIMINARY LANDSCAPE DESIGN (GOLF COURSE BUFFER SECTION)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9005 // www.pleinairedg.com

L-10



❑ DRAINAGE ENHANCEMENT CONCEPT

REPLACEMENT PLANTING

SHRUBS
- Douglas' Mugwort - Artemisia douglasiana
- Creeping Spike Rush - Eleocharis macrostachya
- Irisleaf Rush - Juncus xiphioides
- Orange Bush Monkeyflower - Mimulus auranticus
- Ladies Tobacco - Pseudognaphalium californicum
- Hummingbird Sage - Salvia spathacea
- Blue Elderberry - Sambucus nigra ssp. caerulea
- Western Blue-eyed Grass - Sisyrinchium bellum
- California Hedgenettle - Stachys bullata

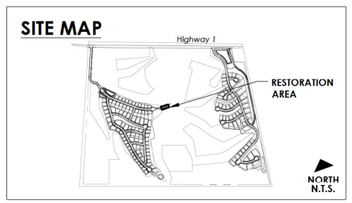
SEED MIXES
- Common Yarrow - Achiella millefolium
- Douglas' Mugwort - Artemisia douglasiana
- Tarragon - Artemisia dracunculus
- Mexican Whorled Milkweed - Asclepias fascicularis
- Saltgrass - Distichlis spicata
- Sticky Cinquefoil - Drymocallis glandulosa
- Beardless Wildrye - Elymus triticoides
- Sky Lupine - Lupinus nanus
- Branching Phacelia - Phacelia ramosissima
- Purple Needlegrass - Stipa pulchra
- Western Vervain - Verbena lasiostachys

REPLACEMENT TREES

TREES
- Northern California Black Walnut - Junglans hindsii
- Arroyo Willow - Salix lasiolepis
- California Sycamore - Platanus acerfolia

BOULDERS

SITE MAP



❑ PRELIMINARY LANDSCAPE DESIGN (DRAINAGE ENHANCEMENT PLAN)

THE NEIGHBOORHOODS OF WILLOW CREEK AND HIDDEN CANYON

ORCUTT, CALIFORNIA
2017.06.09

PLEINAIRE DESIGN GROUP
2601 Skyway Drive, Suite A-1 // Santa Maria, CA 93455
805.349.9695 // www.pleinairedg.com

APPENDIX D

PleinAire Design Group Tree Survey

TREE SURVEY

Project: The Neighborhoods at Willow Creek and Hidden Canyon **Date:** 9/30/2016

[1] Remain
[2] Remove
[3] Prune
[4] Dead
[5] Replace
[6] TBD In Field

Willow Creek

Tree #	Species	Common Name	DBH	CRZ	Disposition	Canopy Dimensions and Notes
1	Eucalyptus sp.	Eucalyptus	60		1	N-31', E-40', S-37', W-34'
2	Eucalyptus sp.	Eucalyptus	14.5		2	N-6', E-5', S-18', W-18' Crowded
3	Myoporum laetum	Myoporum	18		2	N-12', E-3', S-12' W-15'
4	Myoporum laetum	Myoporum	22		2	N-4', E-12', S-15' W-11'
5	Myoporum laetum	Myoporum	10		2	N-6', E-9', S-10', W-12' (Multi-Trunk 11",10")
6	Myoporum laetum	Myoporum	10		2	N-4', E-9', S-9', W-10' (Multi-Trunk 10",10")
7	Myoporum laetum	Myoporum	7		2	N-3', E-7', S-8', W-11' (Multi-Trunk 8",6")
8	Myoporum laetum	Myoporum	6		2	N-7', E-9', S-11', W-8' (Multi-Trunk 6",5")
9	Eucalyptus sp.	Eucalyptus	16		2	N-10', E-21', S-15', W-4'
10	Pinus radiata	Monterey Pine	24		2	N-18', E-21', S-18', W-12'
11	Pinus radiata	Monterey Pine	24		2	N-14', E-21', S-28', W-16' (Multi-Trunk 27",21")
12	Pinus radiata	Monterey Pine	21		2	N-12', E-24', S-21', W-12'
13	Pinus radiata	Monterey Pine	44		2	N-15', E-18', S-27', W-21'
14	Pinus radiata	Monterey Pine	8		2	N-4', E-6', S-9', W-9'
15	Pinus radiata	Monterey Pine	40		2	N-16', E-24', S-34', W-24'
16	Eucalyptus sp.	Eucalyptus	25		2	N-18', E-27', S-22', W-24'
17	Pinus radiata	Monterey Pine	33		1	N-22', E-24', S-21', W-16'
18	Eucalyptus sp.	Eucalyptus	18		2	N-9', E-24', S-12', W-2'
19	Eucalyptus sp.	Eucalyptus	30		2	N-12', E-15', S-24', W-25'
20	Eucalyptus sp.	Eucalyptus	11		2	N-16', E-12', S-2', W-0'
21	Eucalyptus sp.	Eucalyptus	36		1	N-15', E-40", S-39', W-34'
22	Pinus radiata	Monterey Pine	25		2	N-15', E-32', S-32', W-28', Wind damage
23	Eucalyptus sp.	Eucalyptus	27		2	N-2', E-25', S-32', W-24'
24	Eucalyptus sp.	Eucalyptus	11		2	N-0", E-18', S-15', W-7', Hole in trunk (Multi-Trunk 14",6")
25	Eucalyptus sp.	Eucalyptus	48		2	N-18', E-30', S-36', W-32'
26	Pinus radiata	Monterey Pine	35		1	N-24', E-27, S-21', W-15', Wind damage
27	Pinus radiata	Monterey Pine	36		1	N-18', E-21', S-22', W-24'
28	Eucalyptus sp.	Eucalyptus	19		1	N-20', E-30", S-46', W-20'
29	Pinus radiata	Monterey Pine	24		1	N-18', E-15', S-6', W-12', Dead
30	Pinus radiata	Monterey Pine	26		1	N-13', E-23', S-19', W-12'
31	Pinus radiata	Monterey Pine	18		1	N-10', E-11', S-13', W-21'
32	Pinus radiata	Monterey Pine	40		1	N-18', E-26', S-21', W-24'
33	Cupressus macrocarpa	Monterey Cypress	9		1	N-4', E-8', S-15', W-6'
34	Sequoia sempervirens	Coast Redwood	12		2	N-6', E-8', S-8', W-5'
35	Pinus radiata	Monterey Pine	21		4	DEAD
36	Salix Lasiolepis	Arroyo Willow	19		1	N-22', E-22', S-27', W-12'
37	Pinus radiata	Monterey Pine	26		2	N-6', E-14', S-18', W-11' Distressed
38	Pinus radiata	Monterey Pine	15		2	N-2', E-14', S-16', W-10'
39	Pinus radiata	Monterey Pine	40		2	N-10', E-24', S-18', W-15'
40	Cupressus macrocarpa	Monterey Cypress	70		1	N-28", E-30', S-32', W-25'
41	Cupressus macrocarpa	Monterey Cypress	14		1	N-16', E-16', S-17', W-16'
42	Pinus radiata	Monterey Pine	32		1	N-18', E-30', S-26', W-16'
43	Cupressus macrocarpa	Monterey Cypress	24		1	N-16', E-17', S-16', W-16'
44	Eucalyptus sp.	Eucalyptus	9		1	N-6', E-12', S-12', W-4"
45	Cupressus macrocarpa	Monterey Cypress	19		1	N-15', E-17', S-20', W-15'
46	Cupressus macrocarpa	Monterey Cypress	48		1	N-13', E-15', S-19', W-19'
47	Eucalyptus sp.	Eucalyptus	24		1	N-10', E-12', S-18', W-18'
48	Eucalyptus sp.	Eucalyptus	46		1	N-25', E-33', S-36', W-34'
49	Pinus radiata	Monterey Pine	24		1	N-10', E-20', S-22', W-7'
50	Pinus radiata	Monterey Pine	14		1	N-5', E-25', S-30', W-10' (Multi-Trunk 12",17", 17")
51	Sequoia sempervirens	Coast Redwood	22		1	N-10', E-10', S-10', W-10'
52	Sequoia sempervirens	Coast Redwood	24		1	N-10', W-15', S-14', W-10'
53	Washingtonia robusta	Mexican Fan Palm	24		1	N-16', E-14', S-17", W-15'
54	Eucalyptus sp.	Eucalyptus	88		1	N-11', E-12', S-13', W-16'
55	Cupressus macrocarpa	Monterey Cypress	18		1	N-10', E-12', S-15', W-14'
56	Pinus radiata	Monterey Pine	16		1	N-15', E-22', S-19', W-14'
57	Pinus radiata	Monterey Pine	5		1	N-3', E-3', S-3', W-3'
58	Cupressus macrocarpa	Monterey Cypress	14		1	N-15', E-14', S-14', W-14'
59	Eucalyptus sp.	Eucalyptus	75		1	N-20', E-21', S-25', W-18'
60	Cupressus macrocarpa	Monterey Cypress	16		1	N-15', E-13', S-15', W-16'
61	Pinus radiata	Monterey Pine	50		1	N-25', E-30", S-25', W-25'

TREE SURVEY

Project: The Neighborhoods at Willow Creek and Hidden Canyon **Date:** 9/30/2016

[1] Remain
[2] Remove
[3] Prune
[4] Dead
[5] Replace
[6] TBD In Field

Willow Creek

Tree #	Species	Common Name	DBH	CRZ	Disposition	Canopy Dimensions and Notes
62	Cupressus macrocarpa	Monterey Cypress	15		1	N-10', E-10', S-10', W-10'
63	Quercus agrifolia	Coast Live Oak	28	30	1	N-18', E-27', S-26', W-21'
64	Cupressus macrocarpa	Monterey Cypress	14		1	N-12', E-12', S-15', W-12'
65	Eucalyptus sp.	Eucalyptus	14		1	N-30', E-36', S-33', W-28' (Multi-Trunk 16",10",15",18")
66	Eucalyptus sp.	Eucalyptus	15		1	N-4', E-20', S-24', W-21' (Multi-Trunk 18",12")
67	Eucalyptus sp.	Eucalyptus	60		1	N-20', E-30', S-36', W-22'
68	Eucalyptus sp.	Eucalyptus	15		1	N-15', E-10', S-20', W-15'
69	Eucalyptus sp.	Eucalyptus	24		1	N-26', E-25', S-25', W-18'
70	Eucalyptus sp.	Eucalyptus	13		1	N-6', E-9', S-10', W-10' (Multi-Trunk 15",15",11")
71	Quercus agrifolia	Coast Live Oak	48	60	1	N-25', E-26', S-29', W-23'
72	Pinus radiata	Monterey Pine	52		1	N-28', E-30', S-29', W-28'
73	Pinus radiata	Monterey Pine	28		1	N-12', E-15', S-24', W-14'
74	Cupressus macrocarpa	Monterey Cypress	12		1	N-12', E-12', S-12', W-12'
75	Pinus radiata	Monterey Pine	22		1	N-0', E-0', S-34', W-36' (Multi-Trunk 28",16")
76	Pinus radiata	Monterey Pine	16		1	N-4', E-21', S-30", W-15'
77	Pinus radiata	Monterey Pine	5		1	N-4', E-3', S-5', W-4'
78	Pinus radiata	Monterey Pine	19		1	N-12', E-12', S-20', W-18'
79	Pinus radiata	Monterey Pine	22		1	N-19', E-18', S-17', W-15' Distressed
80	Eucalyptus sp.	Eucalyptus	43		1	N-16', E-21', S-21', W-12'
81	Pinus radiata	Monterey Pine	18		1	N-10', E-7', S-15', W-10' Distressed
82	Eucalyptus sp.	Eucalyptus	60		1	N-15', E-18', S-20', W-15'
83	Pinus radiata	Monterey Pine	42		1	N-27', E-32', S-33', W-21'
84	Pinus radiata	Monterey Pine	19		1	
85	Pimus radiata	Monterey Pine	19		4	DEAD
86	Pinus radiata	Monterey Pine	35		1	N-29', E-30', S-21', W-19'
87	Eucalyptus sp.	Eucalyptus	30		1	N-6', E-9', S-9', E-8'
88	Pinus radiata	Monterey Pine	36		1	N-31', E-33', S-28', W-15'
89	Pinus radiata	Monterey Pine	34		1	N-25', E-35', S-30', W-21'
90	Eucalyptus sp.	Eucalyptus	21		1	N-15', E-30', S-26', W-22' (Multi-Trunk 21",21")
91	Pinus radiata	Monterey Pine	30		1	N-24', E-33', S-34', W-27'
92	Eucalyptus sp.	Eucalyptus	45		1	N-23', E-25', S-28', W-28'
93	Pinus radiata	Monterey Pine	34		1	N-17', E-17', S-30', W-16'
94	Washingtonia robusta	Mexican Fan Palm	19			
95	Pinus radiata	Monterey Pine	46		4	DEAD
96	Eucalyptus sp.	Eucalyptus	18		1	N-18', E-18', S-5', W-10'
97	Cupressus macrocarpa	Monterey Cypress	16		1	N-14', E-15', S-15', W-13'
98	Eucalyptus sp.	Eucalyptus	21		1	N-10', E-15', S-19', W-18' (Multi-Trunk 17",24")
99	Eucalyptus sp.	Eucalyptus	52		1	N-30', E-34', S-48", W-28'
100	Fraxinus velutina	Modesto Ash	33		1	N-15', E-24', S-26', W-22'
101	Sequoia sempervirens	Coast Redwood	3		1	N-3', E-3', S-3', W-3'
102	Pinus radiata	Monterey Pine	44		1	N-23', E-23', S-24', W-27'
103	Pinus radiata	Monterey Pine	34		1	N-20", E-19', S-26', W-30'
104	Pinus radiata	Monterey Pine	50		1	N-16', E-16', S-16', W-22'
105	Pinus radiata	Monterey Pine	7		1	N-2', E-2', S-5', W-9'
106	Pinus radiata	Monterey Pine	33		1	N-24", E-25', S-25', W-22'
107	Pinus radiata	Monterey Pine	10		1	N-5", E-8', S-15', W-12'
108	Pinus radiata	Monterey Pine	51		1	N-24', E-22', S-28', W-22'
109	Pinus radiata	Monterey Pine	34		4	DEAD
110	Pinus radiata	Monterey Pine	30		1	N-15', E-18', S-24', W-21'
111	Eucalyptus sp.	Eucalyptus	14		1	N-10', E-12', S-15, W-15'
112	Eucalyptus sp.	Eucalyptus	14		1	N-12', E-15', S-15', W-15'
113	Tree Removed					
114	Pinus radiata	Monterey Pine	17		4	DEAD
115	Pinus radiata	Monterey Pine	19		6	N-4', E-18', S-20', W-16'
116	Pinus radiata	Monterey Pine	8		2	N-10', E-12', S-15', W-8' (Multi-Trunk 7",9", 8")
117	Pinus radiata	Monterey Pine	60		1	N-25', E-21', S-33', W-30' Distressed
118	Eucalyptus sp.	Eucalyptus	44		1	N-18', E-20', S-28', W-30'
119	Pinus radiata	Monterey Pine	28		1	N-15', E-22', S-21', W-23'
120	Pinus radiata	Monterey Pine	37		4	DEAD
121	Washingtonia robusta	Mexican Fan Palm	20		1	
122	Cupressus macrocarpa	Monterey Cypress	16		1	N-16', E-18', S-21', W-18'

TREE SURVEY

Project: The Neighborhoods at Willow Creek and Hidden Canyon **Date:** 9/30/2016

[1] Remain
[2] Remove
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[4] Dead
[5] Replace
[6] TBD In Field

Willow Creek

Tree #	Species	Common Name	DBH	CRZ	Disposition	Canopy Dimensions and Notes
123	Eucalyptus sp.	Eucalyptus	24		1	N-16', E-18', S-28', W-21'
124	Pinus radiata	Monterey Pine	44		4	DEAD
125	Pinus radiata	Monterey Pine	36		1	N-24', E-28', S-25', W-26'
126	Eucalyptus sp.	Eucalyptus	30		1	N-10', E-14', S-24', W-23'
127	Cupressus macrocarpa	Monterey Cypress	7		1	N-10', E-9', S-9', W-10'
128	Eucalyptus sp.	Eucalyptus	9		1	N-5', E-9', S-15', W-12'
129	Cupressus macrocarpa	Monterey Cypress	12		1	N-10', E-16', S-15', W-12'
130	Eucalyptus sp.	Eucalyptus	18		1	N-0', E-6', S-36', W-12'
131	Eucalyptus sp.	Eucalyptus	38		1	N-18', E-19', S-32', W-26'
132	Eucalyptus sp.	Eucalyptus	18		1	N-7', E-20', S-21', W-12'
133	Eucalyptus sp.	Eucalyptus	19		1	N-17', E-16', S-18', W-19', Distressed
134	Fraxinus velutina	Modesto Ash	27		1	N-9', E-11', S-33', W-18'
135	Fraxinus velutina	Modesto Ash	38		1	N-16', E-36", S-23, W-25'
136	Eucalyptus sp.	Eucalyptus	22		1	N-25', E-24', S-16', W-18'
137	Eucalyptus sp.	Eucalyptus	36		1	N-28', E-40', S-42', W-32'
138	Eucalyptus sp.	Eucalyptus	21		6	N-15', E-12', S-17', W-14'
139	Eucalyptus sp.	Eucalyptus	13		2	N-16', E-8', S-10', W-12'
140	Eucalyptus sp.	Eucalyptus	37		2	N-22', E-28', S-19', W-8'
141	Eucalyptus sp.	Eucalyptus	14		2	N-3', E-4', S-12', W-10'
142	Eucalyptus sp.	Eucalyptus	7		2	N-3', E-2', S-5', W-3'
143	Eucalyptus sp.	Eucalyptus	7		2	N-3', E-0', S-5', W-2'
144	Eucalyptus sp.	Eucalyptus	23		2	N-10', E-8', S-12', W-12'
145	Eucalyptus sp.	Eucalyptus	10		2	N-7', E-8', S-9', W-6'
146	Eucalyptus sp.	Eucalyptus	18		2	N-16', E-12', S-18', W-15'
147	Quercus agrifolia	Coast Live Oak	7	7	2	N-9', E-9', S-9', W-9'
148	Quercus agrifolia	Coast Live Oak	6	6	2	N-8', E-5', S-5', W-6'
149	Pinus radiata	Monterey Pine	6		2	N-5', E-5', S-5', W-5'
150	Eucalyptus sp.	Eucalyptus	20		1	N-16', E-28', S-26', W-24'
151	Eucalyptus sp.	Eucalyptus	11		1	N-7', E-18', S-5', W-0'
152	Eucalyptus sp.	Eucalyptus	14		1	N-3', E-18', S-9', W-6' Die back
153	Eucalyptus sp.	Eucalyptus	72		6	N-36', E-33', S-36', W-27
154	Eucalyptus sp.	Eucalyptus	48		6	N-15', E-15', S-14', W-10'
155	Eucalyptus sp.	Eucalyptus	28		6	N-3', E-9', S-18', W-7'
156	Eucalyptus sp.	Eucalyptus	42		1	N-34', E-35', S-30', W-26'
157	Eucalyptus sp.	Eucalyptus	48		1	N-27', E-31', S-33', W-27'
158	Eucalyptus sp.	Eucalyptus	68		2	N-37', E-34', S-33', W-33'
159	Pinus radiata	Monterey Pine	38		1	N-20', E-19', S-22', W-26'
160	Pinus radiata	Monterey Pine	23		4, 2	DEAD (Multi-Trunk 24",22", 25")
161	Pinus radiata	Monterey Pine	26		4, 2	DEAD (Multi-Trunk 24",22", 25")
162	Pinus radiata	Monterey Pine	48		1	N-34', E-36', S-42', W-33' Pest in bark
163	Eucalyptus sp.	Eucalyptus	40		1	N-19', E-27', S-28', W-24', Die back
164	Sequoia sempervirens	Coast Redwood	17		1	N-10', E-10', S-10', W-10'
165	Sequoia sempervirens	Coast Redwood	15		1	N-10', E-11', S-10', W-8'
166	Cupressus macrocarpa	Monterey Cypress	42		1	N-22', E-24', S-22', W-16'
167	Cupressus macrocarpa	Monterey Cypress	17		1	N-18', E-19', S-19', W-15'
168	Pinus radiata	Monterey Pine	8		1	N-4', E-4', S-4', W-4'
169	Washingtonia robusta	Mexican Fan Palm	21		1	
170	Pinus radiata	Monterey Pine	60		4	DEAD
171	Tree Removed					
172	Quercus agrifolia	Coast Live Oak	25	25.5	1	N-18', E-20', S-21', W-8'
173	Pinus radiata	Monterey Pine	64		1	N-30', E-32', S-33', W-22'
174	Sequoia sempervirens	Coast Redwood	16		1	N-10', E-10', S-10', W-10'
175	Pinus radiata	Monterey Pine	36		1	N-15', E-24', S-25', W-15'
176	Pinus radiata	Monterey Pine	12		1	N-23', E-36', S-34', W-17'
177	Pinus radiata	Monterey Pine	19		4	DEAD
178	Cupressus macrocarpa	Monterey Cypress	2		1	N-2', E-2', S-2', W-2'
179	Cupressus macrocarpa	Monterey Cypress	14		1	N-12', E-12', S-12', W-12'
180	Cupressus macrocarpa	Monterey Cypress	11		1	N-12', E-12', S-12', W-12'
181	Pinus radiata	Monterey Pine	44		1	N-10', E-10', S-33', W-28'
182	Washingtonia robusta	Mexican Fan Palm	23		1	
183	Quercus agrifolia	Coast Live Oak	27	28.5	1	N-15', E-27', S-25', W-7'
184	Pinus radiata	Monterey Pine	60		1	N-32', E-33', E-25', W-28', Die back
185	Sequoia sempervirens	Coast Redwood	15		1	N-10', E-10', S-12', W-10'
186	Pinus radiata	Monterey Pine	26		1	N-15', E-21', S-20', W-19'
187	Pinus radiata	Monterey Pine	26		1	N-14', E-22', S-19', W-12'
188	Sequoia sempervirens	Coast Redwood	5		1	N-3', E-3', S-3', W-3'
189	Sequoia sempervirens	Coast Redwood	7		1	N-4', E-3', S-3', W-4'
190	Pinus radiata	Monterey Pine	33		1	N-28', E-34', S-30', W-28' (Multi-Trunk 46",26",24")
191	Sequoia sempervirens	Coast Redwood	2		1	N-2', E-2', S-2', W-2'
192	Sequoia sempervirens	Coast Redwood	7		1	N-6', E-6', S-6', W-6'
193	Sequoia sempervirens	Coast Redwood	10		4	DEAD
194	Myoporum laetum	Myoporum	18		1	N-13', E-13', ES-18', W-4'
195	Myoporum laetum	Myoporum	14		1	N-13', E-13', S-18', W-4' (Multi-Trunk 9",17")

TREE SURVEY

Project: The Neighborhoods at Willow Creek and Hidden Canyon **Date:** 9/30/2016

[1] Remain
[2] Remove
[3] Prune
[4] Dead
[5] Replace
[6] TBD In Field

Willow Creek

Tree #	Species	Common Name	DBH	CRZ	Disposition	Canopy Dimensions and Notes
196	Cupressus macrocarpa	Monterey Cypress	48		1	N-13', E-13', S-18', W-4' Poor health, Thrift infested
197	Cupressus macrocarpa	Monterey Cypress	16		1	N-12', E-13', S-10', W-7'
198	Cupressus macrocarpa	Monterey Cypress	5		1	N-7', E-8', S-7', W-7'
199	Cupressus macrocarpa	Monterey Cypress	11		1	N-13', E-14', S-12', W-13'
200	Olea sp.	Olive Tree	10		1	N-6', E-3', S-12', W-14'
201	Cupressus macrocarpa	Monterey Cypress	14		1	N-16', E-18', S-17', W-13'
	Off-Site					
202	Eucalyptus sp.	Eucalyptus	35		1	
203	Pinus radiata	Monterey Pine	25		2	
204	Phoenix canariensis	Canary Island Palm	44		2	
205	Phoenix canariensis	Canary Island Palm	40		4	DEAD
206	Phoenix canariensis	Canary Island Palm	42		2	
207	Phoenix canariensis	Canary Island Palm	50		2	
208	Acacia sp.	Acacia	35		2	
209	Acacia sp.	Acacia	21		2	

TREE SURVEY

Project: The Neighborhoods at Willow Creek and Hidden Canyon **Date:** 5/25/2017

[1] Remain
[2] Remove
[3] Prune
[4] Dead
[5] Replace
[6] TBD In Field

Hidden Canyon

Tree #	Species	Common Name	DBH	CRZ	Disposition	Canopy Dimensions and Notes
500	Fraxinus velutina	Modesto Ash	24		1	N-12', S-16', E-22', W-18'
501	Fraxinus velutina	Modesto Ash	28		1	N-25', E-26', S-27', W-18'
502	Eucalyptus sp.	Eucalyptus	60		1	N-28', E-33', S-30', W-27'
503	Eucalyptus sp.	Eucalyptus	9		2	N-0", E-6', S-20', W-3'
504	Eucalyptus sp.	Eucalyptus	19		2	N-15', E-24', S-28', W-0'
505	Eucalyptus sp.	Eucalyptus	16		2	N-16', E-15', S-17', W-14'
506	Eucalyptus sp.	Eucalyptus	20		1	N-16', E-18', S-26', W-28' (Multi-Trunk 20",19")
507	Cupressus macrocarpa	Monterey Cypress	9		1	N-12', E-14', S-15', W-13'
508	Eucalyptus sp.	Eucalyptus	32		1	N-7', E-16', S-39', W-27'
509	Pinus radiata	Monterey Pine	29		1	N-6', E-15', S-31', W-27'
510	Salix Lasiolepis	Arroyo Willow	28		2	N-19', E-18', S-28', W-16'
511	Pinus radiata	Monterey Pine	54		2	N-42', E-32', S-42', W-33'
512	Pinus radiata	Monterey Pine	46		2	N-32', E-22', S-10', W-18'
513	Pinus radiata	Monterey Pine	24		4	DEAD
514	Salix Lasiolepis	Arroyo Willow	7		2	N-4', E-10', S-15', W-17' (Multi-Trunk 3",11")
515	Salix Lasiolepis	Arroyo Willow	10		2	N-20', E-15', S-20', W-24' (Multi-Trunk 10",10",10")
516	Eucalyptus sp.	Eucalyptus	68		1	N-17', E-15', S-35', W-30'
517	Pinus radiata	Monterey Pine	36		4	DEAD
518	Quercus agrifolia	Coast Live Oak	15	15	1	N-7', E-10', S-12', W-13', Die back // Height: 25'
519	Eucalyptus sp.	Eucalyptus	20		1	N-15', E-12', S-9', W-22'
520	Fraxinus velutina	Modesto Ash	34		1	N-18', E-21', S-25', W-25'
521	Fraxinus velutina	Modesto Ash	18		1	N-7", E-24", S-30", W-10'
522	Eucalyptus sp.	Eucalyptus	20		1	N-0', E-6', S-34', W-8'
523	Eucalyptus sp.	Eucalyptus	19		1	N-16', E-18', S-34', W-3'
524	Fraxinus velutina	Modesto Ash	50		1	N-25', E-30', S-34'. W-33'
525	Eucalyptus sp.	Eucalyptus	13		1	N-0', E-4', S-25, W-15'
526	Eucalyptus sp.	Eucalyptus	24		1	N-15', E-15', S-15', W-27'
527	Eucalyptus sp.	Eucalyptus	14		1	N-0', E-23', S-25, W-8'
528	Eucalyptus sp.	Eucalyptus	12		2	N-6', E-4', S-18', W-24'
529	Eucalyptus sp.	Eucalyptus	10		2	N-0", E-10', S-21', W-5'
530	Eucalyptus sp.	Eucalyptus	8		2	N-0", E-15', S-4', W-5'
531	Pinus radiata	Monterey Pine	50		1	N-50', E-18", S-30', W-18', Die back
532	Pinus radiata	Monterey Pine	21		1	N-7', E-10', S-24', W-6'
533	Pinus radiata	Monterey Pine	40		1	N-10', E-12', S-28', W-29'
534	Eucalyptus sp.	Eucalyptus	21		1	N-2', E-2', S-31', W15'
535	Eucalyptus sp.	Eucalyptus	11		1	N-3', E-10', S-15', W-10' (Multi-Trunk 14",9",9")
536	Eucalyptus sp.	Eucalyptus	44		1	N-9', E-22', S-24', W-22'
537	Eucalyptus sp.	Eucalyptus	59		1	N-10', E-17', S-26', W-22'
538	Eucalyptus sp.	Eucalyptus	32		1	N-18', S-19', E-32', W-21'
539	Eucalyptus sp.	Eucalyptus	40		1	N-24', E-10', S-44', W-36'
540	Eucalyptus sp.	Eucalyptus	28		1	N-17', E-24', S-30', W-25'
541	Pinus radiata	Monterey Pine	26		1	N-10', E-22', S-25', W-16'
542	Eucalyptus sp.	Eucalyptus	22		1	N-10', E-8', S-32', W-24'
543	Pinus radiata	Monterey Pine	34		1	N-18', E-15', S-18', W-19'
544	Eucalyptus sp.	Eucalyptus	30		1	N-12', E-29', S-33', W-17'
545	Eucalyptus sp.	Eucalyptus	36		1	N-18', E-28', S-31', W-33'
546	Pinus radiata	Monterey Pine	6		1	N-7', E-5', S-4', W-6'
547	Eucalyptus sp.	Eucalyptus	10		2	N-10', E-15', S-21', W-4'
548	Eucalyptus sp.	Eucalyptus	13		2	N-3', E-2', S-20', W-19'
549	Eucalyptus sp.	Eucalyptus	48		1	N-15', E-24', S-48', W-28'
550	Pinus radiata	Monterey Pine	9		1	N-10', E-10', S-4', W-3'
551	Eucalyptus sp.	Eucalyptus	54		1	N-30', E-33', S-37', W-30'
552	Eucalyptus sp.	Eucalyptus	21		1	N-6', E-28', S-29', W-21'
553	Cupressus macrocarpa	Monterey Cypress	14		1	N-15', E-16', S-16', W-15'
554	Eucalyptus sp.	Eucalyptus	46		1	N-30', E-28', S-33', W-34'
555	Eucalyptus sp.	Eucalyptus	14		1	N-7', E-9', S-9', W-9'
556	Eucalyptus sp.	Eucalyptus	32		1	N-27', E-16', S-16', W-22'

APPENDIX E

Dudek Tree Inventory

APPENDIX E
Neighborhoods – Sewer Line – Tree Inventory

Date of Survey: 12/17/2018

Dudek Biologist: Heather Moine

Tree No.	Tree Species	Individual Measurements Diameter at Breast Height (inches)	Total Diameter at Breast Height (inches)	Height (Feet)
601	arroyo willow (*Salix lasiolepis*)	1.25, 2.5, 3.75, 3, 3, 4, 4, 4, 4, 4.5, 5, 5, 6, 6.25, 6.25	62.5	30
602	arroyo willow (*Salix lasiolepis*)	3, 3	6	25
603	arroyo willow (*Salix lasiolepis*)	2.5	2.5	25
604	arroyo willow (*Salix lasiolepis*)	3.5, 4.5	8	25
605	arroyo willow (*Salix lasiolepis*)	3, 3.5, 3.5	10	25
606	arroyo willow (*Salix lasiolepis*)	1, 2	3	25
607	arroyo willow (*Salix lasiolepis*)	2.75, 3, 3	8.75	25
608	arroyo willow (*Salix lasiolepis*)	4	4	25
609	arroyo willow (*Salix lasiolepis*)	3, 3	6	25
610	arroyo willow (*Salix lasiolepis*)	2.25, 3.5	5.75	25
611	arroyo willow (*Salix lasiolepis*)	1, 2, 4.5, 6	13.5	25
612	arroyo willow (*Salix lasiolepis*)	1.5, 4	5.5	25
613	arroyo willow (*Salix lasiolepis*)	3.25	3.25	25
614	arroyo willow (*Salix lasiolepis*)	5.5	5.5	25
615	arroyo willow (*Salix lasiolepis*)	2.25, 4	6.25	25
616	arroyo willow (*Salix lasiolepis*)	1.75	1.75	25
617	arroyo willow (*Salix lasiolepis*)	2.5	2.5	25
618	arroyo willow (*Salix lasiolepis*)	2, 3	5	25
619	arroyo willow (*Salix lasiolepis*)	1	1	20
620	arroyo willow (*Salix lasiolepis*)	4	4	25
621	arroyo willow (*Salix lasiolepis*)	4	4	25
622	arroyo willow (*Salix lasiolepis*)	1	1	20
623	arroyo willow (*Salix lasiolepis*)	1	1	15
624	arroyo willow (*Salix lasiolepis*)	1.5	1.5	25
625	arroyo willow (*Salix lasiolepis*)	1, 1.5	2.5	15
626	arroyo willow (*Salix lasiolepis*)	1, 1.5	2.5	20
627	arroyo willow (*Salix lasiolepis*)	1.5	1.5	20
628	arroyo willow (*Salix lasiolepis*)	1	1	15
629	arroyo willow (*Salix lasiolepis*)	2, 2.5, 2.5, 3, 4	14	25
630	arroyo willow (*Salix lasiolepis*)	2, 4, 4, 7.5	17.5	25
631	arroyo willow (*Salix lasiolepis*)	3.5, 4, 6	13.5	25
632	arroyo willow (*Salix lasiolepis*)	1.5, 6.5	8	25
633	arroyo willow (*Salix lasiolepis*)	1.5, 3, 3, 7.5	15	25
634	arroyo willow (*Salix lasiolepis*)	3.5, 3.5, 4.75	11.75	25

Tree No.	Tree Species	Individual Measurements Diameter at Breast Height (inches)	Total Diameter at Breast Height (inches)	Height (Feet)
635	arroyo willow (*Salix lasiolepis*)	6	6	25
636	arroyo willow (*Salix lasiolepis*)	3, 4.5, 5.25, 6.5, 7	26.25	25
637	arroyo willow (*Salix lasiolepis*)	2.5, 4.5, 6	13	25
638	arroyo willow (*Salix lasiolepis*)	4, 6.5	10.5	25
639	arroyo willow (*Salix lasiolepis*)	6.5	6.5	25
640	arroyo willow (*Salix lasiolepis*)	1.25	1.25	15
641	arroyo willow (*Salix lasiolepis*)	3, 3.75	6.75	20
642	arroyo willow (*Salix lasiolepis*)	5.5, 6, 8	19.5	25
643	arroyo willow (*Salix lasiolepis*)	2, 3.75	5.75	25
644	arroyo willow (*Salix lasiolepis*)	1	1	15
645	arroyo willow (*Salix lasiolepis*)	7	7	25
646	arroyo willow (*Salix lasiolepis*)	1.75, 2	3.75	20
647	arroyo willow (*Salix lasiolepis*)	2.5, 5	7.5	25
648	arroyo willow (*Salix lasiolepis*)	5.75	5.75	25
649	arroyo willow (*Salix lasiolepis*)	3	3	25
650	arroyo willow (*Salix lasiolepis*)	3	3	25
651	arroyo willow (*Salix lasiolepis*)	9	9	25
652	arroyo willow (*Salix lasiolepis*)	8.25	8.25	25
653	arroyo willow (*Salix lasiolepis*)	1.25, 2, 2.5	5.75	15
654	arroyo willow (*Salix lasiolepis*)	1.5, 2.5, 3	7	20
655	arroyo willow (*Salix lasiolepis*)	1	1	8
656	arroyo willow (*Salix lasiolepis*)	4, 7, 7.25, 10	28.25	25
657	arroyo willow (*Salix lasiolepis*)	1.25, 1.25, 1.5, 1.5	5.5	25
658	arroyo willow (*Salix lasiolepis*)	1.25	1.25	15
659	arroyo willow (*Salix lasiolepis*)	1	1	12
660	arroyo willow (*Salix lasiolepis*)	7, 7.5	14.5	25
661	arroyo willow (*Salix lasiolepis*)	1.5, 2, 3.5, 7	14	25
662	arroyo willow (*Salix lasiolepis*)	1.5, 2, 3, 4, 4, 5	19.5	25
663	arroyo willow (*Salix lasiolepis*)	1	1	15
664	arroyo willow (*Salix lasiolepis*)	1.5, 2, 2, 3, 3.75, 4.5, 5, 5, 6, 6	38.75	25

Note:

* canopy radius not recorded due to overlapping tree canopy structure of arroyo willow trees

APPENDIX ~~C~~ F

Cumulative List of Plant Species

APPENDIX F
Cumulative List of Plant Species

VASCULAR SPECIES

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Chlorogalum pomeridianum var. *pomeridianum*—wavyleaf soap plant

CYPERACEAE—SEDGE FAMILY

Bolboschoenus maritimus ssp. *paludosus*—cosmopolitan bulrush
Cyperus eragrostis—tall flatsedge
Eleocharis macrostachya—pale spikerush
Schoenoplectus californicus—California bulrush

IRIDACEAE—IRIS FAMILY

Sisyrinchium bellum—western blue-eyed grass

JUNCACEAE—RUSH FAMILY

Juncus xiphioides—irisleaf rush

POACEAE—GRASS FAMILY

Agrostis pallens—seashore bentgrass
* *Avena barbata*—slender oat
* *Bromus catharticus*—rescuegrass
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Bromus madritensis*—compact brome
* *Cynodon dactylon*—Bermudagrass
Distichlis spicata—saltgrass
* *Ehrharta calycina*—perennial veldtgrass
Elymus triticoides—beardless wildrye
Festuca microstachys—desert fescue
* *Festuca myuros*—rat-tail fescue
* *Festuca perennis*—Italian ryegrass
* *Gastridium phleoides*—nit grass
* *Hordeum vulgare*—common barley
Koeleria macrantha—prairie Junegrass
* *Lamarckia aurea*—goldentop grass
Melica imperfecta—smallflower melicgrass
* *Phalaris minor*—littleseed canarygrass

* *Poa annua—annual bluegrass*
Poa secunda—Sandberg bluegrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Schismus barbatus*—common Mediterranean grass
* *Stipa miliacea* var. *miliacea*—smilograss
Stipa pulchra—purple needlegrass
* *Triticum aestivum*—common wheat

THEMIDACEAE—BRODIAEA FAMILY
Bloomeria crocea—common goldenstar

TYPHACEAE—CATTAIL FAMILY
Typha latifolia—broadleaf cattail

EUDICOTS

ADOXACEAE—MUSKROOT FAMILY
Sambucus nigra ssp. *caerulea*—blue elderberry

AIZOACEAE—FIG-MARIGOLD FAMILY
* *Carpobrotus edulis*—hottentot fig

ANACARDIACEAE—SUMAC OR CASHEW FAMILY
* *Schinus molle*—Peruvian peppertree
Toxicodendron diversilobum—Pacific poison oak

APIACEAE—CARROT FAMILY
* *Conium maculatum*—poison hemlock
Daucus pusillus—American wild carrot
Sanicula crassicaulis—Pacific blacksnakeroot

APOCYNACEAE—DOGBANE FAMILY
Asclepias fascicularis—Mexican whorled milkweed

ASTERACEAE—SUNFLOWER FAMILY
Achillea millefolium—common yarrow
Ambrosia psilostachya—Cuman ragweed
Artemisia californica—coastal sagebrush
Artemisia douglasiana—Douglas' sagewort
Artemisia dracunculus—tarragon
Baccharis pilularis ssp. *consanguinea*—coyotebrush

* *Carduus pycnocephalus*—Italian plumeless thistle
* *Centaurea melitensis*—Maltese star-thistle
* *Cirsium vulgare*—bull thistle
Corethrogyne filaginifolia—common sandaster
Deinandra increscens ssp. *increscens*—grassland tarweed
Erigeron canadensis—Canadian horseweed
Gnaphalium palustre—western marsh cudweed
Grindelia hirsutula—hairy gumweed
* *Helminthotheca echioides*—bristly oxtongue
Heterotheca grandiflora—telegraphweed
* *Hypochaeris glabra*—smooth cat's ear
* *Hypochaeris radicata*—hairy cat's ear
Isocoma menziesii var. *menziesii*—Menzies' goldenbush
* *Lactuca serriola*—prickly lettuce
Madia sativa—coast tarweed
* *Matricaria discoidea*—disc mayweed
Pseudognaphalium californicum—ladies' tobacco
* *Pseudognaphalium luteoalbum*—Jersey cudweed
Pseudognaphalium ramosissimum—pink cudweed
* *Silybum marianum*—blessed milkthistle
* *Sonchus asper*—spiny sowthistle
* *Sonchus oleraceus*—common sowthistle
Stephanomeria virgata—rod wirelettuce

BORAGINACEAE—BORAGE FAMILY

Amsinckia menziesii—Menzies' fiddleneck
Amsinckia spectabilis—woolly breeches
Heliotropium curassavicum—salt heliotrope
Phacelia ramosissima—branching phacelia
Pholistoma auritum var. *auritum*—blue fiestaflower

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Brassica rapa*—field mustard
* *Capsella bursa-pastoris*—shepherd's purse
* *Lepidium draba*—whitetop
Lepidium nitidum—shining pepperweed
* *Raphanus sativus*—cultivated radish

CACTACEAE—CACTUS FAMILY

* *Opuntia ficus-indica*—Barbary fig

CARYOPHYLLACEAE—PINK FAMILY

Cardionema ramosissimum—sandcarpet
* *Polycarpon tetraphyllum*—fourleaf manyseed
* *Silene gallica*—common catchfly
* *Spergula arvensis*—corn spurry
* *Spergularia rubra*—red sandspurry
* *Stellaria media*—common chickweed

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Atriplex prostrata*—triangle orache
* *Atriplex semibaccata*—Australian saltbush
Chenopodium californicum—California goosefoot
* *Chenopodium m*urale—nettleleaf goosefoot

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia macrostegia—island false bindweed

CRASSULACEAE—STONECROP FAMILY

Crassula connata—sand pygmyweed
Dudleya blochmaniae ssp. *blochmaniae*—Blochman's dudleya
Dudleya lanceolata—lanceleaf liveforever

EUPHORBIACEAE—SPURGE FAMILY

Croton californicus—California croton
Croton setiger—dove weed
* *Euphorbia peplus*—petty spurge

FABACEAE—LEGUME FAMILY

Acmispon americanus var. *americanus*—American bird's-foot trefoil
Acmispon glaber var. *glaber*—common deerweed
* *Lotus corniculatus*—bird's-foot trefoil
Lupinus bicolor—miniature lupine
Lupinus nanus—sky lupine
* *Medicago polymorpha*—burclover
* *Melilotus indicus*—annual yellow sweetclover
* *Vicia sativa*—garden vetch

FAGACEAE—OAK FAMILY

Quercus agrifolia—Coast live oak

GERANIACEAE—GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill

* *Erodium cicutarium*—redstem stork's bill

Geranium carolinianum—Carolina geranium

* *Geranium dissectum*—cutleaf geranium

JUGLANDACEAE—WALNUT FAMILY

Juglans hindsii—Northern California black walnut

LAMIACEAE—MINT FAMILY

Salvia mellifera—black sage

Salvia spathacea—hummingbird sage

Stachys bullata—California hedgenettle

LYTHRACEAE—LOOSESTRIFE FAMILY

**Lythrum hyssopifolia*—hyssop loosestrife

MALVACEAE—MALLOW FAMILY

Malacothamnus fasciculatus—Mendocino bushmallow

* *Malva parviflora*—cheeseweed mallow

Sidalcea malviflora—dwarf checkerbloom

MONTIACEAE—MONTIA FAMILY

Calandrinia menziesii—red maids

Claytonia perfoliata—miner's lettuce

MORACEAE—MULBERRY FAMILY

* *Morus alba*—white mulberry

MYRSINACEAE—MYRSINE FAMILY

* *Lysimachia arvensis*—scarlet pimpernel

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus globulus*—Tasmanian bluegum

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissoniopsis bistorta—southern suncup

Epilobium ciliatum—fringed willowherb

OXALIDACEAE—OXALIS FAMILY

* *Oxalis pes-caprae*—Bermuda buttercup

PHRYMACEAE—LOPSEED FAMILY

Mimulus aurantiacus var. *aurantiacus*—orange bush monkeyflower

PLANTAGINACEAE—PLANTAIN FAMILY

* *Plantago coronopus*—buckhorn plantain
Plantago erecta—dotseed plantain
* *Plantago lanceolata*—narrowleaf plantain

POLEMONIACEAE—PHLOX FAMILY

Navarretia atractyloides—hollyleaf pincushionplant

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum elongatum—longstem buckwheat
* *Polygonum aviculare* ssp. *depressum*—prostrate knotweed
* *Rumex acetosella*—common sheep sorrel
* *Rumex crispus*—curly dock

RHAMNACEAE—BUCKTHORN FAMILY

Frangula californica—California buckthorn

ROSACEAE—ROSE FAMILY

Drymocallis glandulosa—sticky cinquefoil
Heteromeles arbutifolia—toyon
Horkelia cuneata var. *cuneata*—wedgeleaf horkelia

RUBIACEAE—MADDER FAMILY

Galium aparine—stickywilly

SALICACEAE—WILLOW FAMILY

Salix lasiolepis—arroyo willow

SCROPHULARIACEAE—FIGWORT FAMILY

* *Myoporum laetum*—ngaio tree
Scrophularia californica—California figwort

SOLANACEAE—NIGHTSHADE FAMILY

* *Nicotiana glauca*—tree tobacco
Solanum douglasii—greenspot nightshade

URTICACEAE—NETTLE FAMILY

* *Urtica urens*—dwarf nettle

VERBENACEAE—VERVAIN FAMILY

Verbena lasiostachys—western vervain

* signifies introduced (non-native) species

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APPENDIX ~~D~~ G

Cumulative List of Wildlife Species

APPENDIX G
Cumulative List of Wildlife Species

Scientific Name	Common Name	Habitat Use Area1	Species Abundance
Reptiles and Amphibians			
Pseudacris hypochondriaca hypochondriaca	Baja California treefrog	AWT, CLOW-AWT	Common
Uta stansburiana elagans	Common side-blotched lizard	CAG, CYS, CSS, PNGG, RGG, DEV, Debris, CLOW, EG	Abundant
Sceloporus occidentalis	Western fence lizard	DEV, AWT, EG, CLOW	Common
Birds			
Odontophoridae (Quail)			
Callipepla californica	California quail	AWT, CYS, CSS, CLOW, EG	Common
Anatidae (Ducks, Geese, and Swans)			
Bucephala albeola	Bufflehead	CAG, RGG, PNGG	Common
Apodidae (Swifts)			
Aeronautes saxatalis	White-throated swift	CN-NV, etc.	Uncommon
Cathartidae (Vultures)			
Cathartes aura	Turkey vulture	CAG, RGG, PNGG, EG, CLOW	Common
Accipitridae (Hawks)			
Elanus leucurus	White-tailed kite	EG, CLOW, CAG, PNGG, RGG	Uncommon
Aquila chrysaetos	Golden eagle	EG, CLOW, CAG	Uncommon
Circus cyaneus	Northern harrier	CAG, PNGG, RGG, DEV	Uncommon
Accipter cooperii	Cooper's hawk	EG, CLOW, CAG, PNGG, RGG	Uncommon
Buteo jamaicensis	Red-tailed hawk	EG, CLOW, CAG, PNGG, RGG	Uncommon
Buteo lineatus	Red-shouldered hawk	EG, AWT, CLOW, CAG, PNGG, RGG	Uncommon
Falconidae (Falcons)			
Falco sparverius	American kestrel	EG, CLOW, AWT, DEV	Uncommon
Turdidae (Thrushes)			
Turdus migratorius	American robin	EG, CLOW, DEV, AWT	Common
Sialia mexicana	Western bluebird	EG, CYS, CSS, CLOW, DEV, AWT	Uncommon
Charadriidae (Plovers)			
Charadrius vociferus	Killdeer	DEV, EG, CAG, PNGG, RGG, Debris	Common
Columbidae (Pigeons and doves)			
Streptopelia decaocto	Eurasian collared-dove	CAG, EG, DEV, Debris	Uncommon
Zenaida macroura	Mourning dove	CAG, AWT, CYS, CLOW, CSS, PNGG, RGG	Common
Strigidae (True Owls)			
Bubo virginianus	Great horned owl	CLOW, AWT, EG	Uncommon
Colubridae (Hummingbirds)			
Calypte anna	Anna's hummingbird	AWT, CYS, CSS, EG, CLOW, DEV	Common
Picidae (Woodpeckers)			
Picoides nuttallii	Nuttall's woodpecker	AWT, CLOW, EG, DEV	Sparse
Colaptes auratus	Northern flicker	CLOW, EG, AWT	Uncommon

Scientific Name	Common Name	Habitat Use Area1	Species Abundance
Tyrannidae (*Flycatchers*)			
Sayornis nigricans	Black phoebe	CAG, EG, DEV, AWT, PNGG, RGG	Common
Saynoris saya	Say's phoebe	CAG, EG, DEV, AWT, PNGG, RGG	Common
Rallidae (Rails, Gallinules, and Coots)			
Fulica americana	American coot	CAG, RGG, PNGG	Common
Regulidae (Kinglets)			
Regulus calendula	Ruby-crowned kinglet	AWT, CLOW	Uncommon
Paridae (Chickadees and Titmice)			
Baeolophus inornatus	Oak titmouse	CLOW, AWT, EG	Uncommon
Corvidae (Jays and Crows)			
Aphelocoma californica	Western scrub-jay	CLOW, CYS, CSS, EG, AWT, DEV	Common
Corvus brachyrhynchos	American crow	CLOW, EG, AWT, DEV	Common
Corvus corax	Common Raven	CAG, EG, AWT, CLOW, DEV	Sparse
Agethalidae (Long-tailed tits)			
Psaltriparus minimus	Bushtit	AWT, CYS, CSS,	Common
Troglodytidae (Wrens)			
Thrymanes bewickii	Bewick's wren	AWT, CLOW, EG, CYS, CSS	Uncommon
Sylviidae (Old World warblers)			
Chamaea fasciata	Wrentit	AWT, CYS, CSS, CLOW-AWT	Common
Mimidae (Mockingbirds and Thrashers)			
Toxostoma redivivum	California thrasher	CYS, CSS	Uncommon
Sturnidae (Starlings and mynas)			
Sturnus vulgaris	European starling	DEV, EG, CLOW, CAG	Common
Parulidae (Wood warblers)			
Setophaga coronata	Yellow-rumped warbler	AWT, EG, CLOW	Uncommon
Emberizidae (Sparrows and Allies)			
Pipilo maculatus	Spotted towhee	AWT, CYS, CSS,	Uncommon
Melozone crissalis	California towhee	CYS, CSS, AWT, EG, DEV	Common
Zonotrichia leucophrys	White-crowned sparrow	CAG, EG, CYS, CSS, AWT	Common
Icteridae (Blackbirds and Orioles)			
Agelaius phoeniceus	Red-winged blackbird	AWT, CAG, RGG	Common
Sturnella neglecta	Western meadowlark	CAGG, PNGG, RGG	Uncommon
Euphagus cyanocephalus	Brewer's blackbird	EG, AWT, CLOW, DEV, Debris	Common
Fringillidae (Finches)			
Haemorhous mexicanus	House finch	AWT, EG, CYS, CSS, DEV	Abundant
Spinus tristis	American goldfinch	AWT, CLOW,	Uncommon
Mammals			
Procyonidae (Raccoons)			
Procyon lotor	Northern raccoon	AWT	Uncommon
Canidae (Dogs)			
Canis latrans	Coyote	ABG, CBS, IRGG, etc.	Uncommon

Scientific Name	Common Name	Habitat Use Area1	Species Abundance
Sciuridae (Squirrels)			
Spermophilus beecheyi	California ground squirrel	ABG, ABGT, IPM, IRGG, WOG	Uncommon
Geomyidae (Pocket gophers)			
Thomomys bottae	Botta's pocket gopher	CAG, RGG, PNGG, DEV	Common
Muridae (Rats, Mice, Voles)			
Neotoma sp.	Woodrat	AWT, CLOW, CYS, CSS	Uncommon
Leporidae (Rabbits and Hares)			
Sylvilagus bachmani	Brush rabbit	AWT, CYS, CSS	Common

[1]Notes:
CLOW = coast live oak woodland
CLOW-AWT = coast live oak woodland-arroyo willow thicket
EG = eucalyptus grove
AWT = arroyo willow thicket
CSS = California sagebrush scrub
CYS = coyote brush scrub
NGG = non-native grassland
PNGG = purple needle grass grassland
RGG = perennial rye grass grassland
Dev = urban/developed
Debris = debris

APPENDIX G
Cumulative List of Wildlife Species

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APPENDIX H

2005 VJS Biological Consulting California Tiger Salamander

May 21, 2005

FINAL REPORT

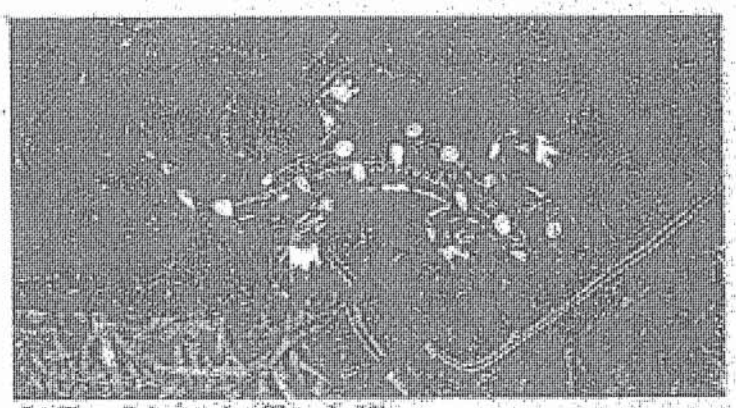
RANCHO MARIA ESTATES
Drift Fence Study 2004-05
For
CALIFORNIA TIGER SALAMANDER
(*Ambystoma californiense*)

For: Greg McGowan, LFR

By: Vince Semonsen, Wildlife Biologist
CA Tiger Salamander Federal Fish and Wildlife Permit Number TE030384-1

Introduction

This report documents the results of a Drift Fence Study for CA tiger salamanders (CTS) conducted on the Rancho Maria Estates Property. The 190-acre property is located along the perimeter and interior open space associated with the Rancho Maria Public Golf Course, located west of the town of Orcutt in Santa Barbara County (Figure 1). The drift fence study was designed by Vince Semonsen and Larry Hunt in consultation with Katie Drexhage of the U. S. fish and Wildlife Service. The study design and implementation was based on the U. S. Fish and Wildlife Service protocol survey recommendations detailed within their October 2003 document entitled "Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander". Approval for the Drift Fence Study Design was received from the U. S. Fish and Wildlife Service in late October 2004 and the system was installed and opened on November 4, 2004. Nine CTS were captured during the course of the study.



CA Tiger Salamander (Female #2)

Environmental Setting

The Rancho Maria Estates property (RME) is within the tiger salamander range as per the U. S. Fish and Wildlife Service Map dated July, 2001, with portions of the property within the salamanders migratory range from several known breeding ponds, as indicated on the Santa Barbara County map dated August 31, 2001. An initial site assessment for CTS was prepared by LFR Levine Fricke in February 2004 describing the aquatic and upland habitat on the property and the probability that CTS could be utilizing the property. The property is surrounded by a combination

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Santa Barbara, CA 93101
805•687•0249

of open grazed grassland and cultivated agriculture, with the cultivated agriculture found around the northern half of the property and the grazed grassland to the south where it extends into the Casmalia hills. The drift fence study was limited to the RME property whose boundaries are quite convoluted as it winds in and around the Rancho Maria Public Golf Course. Land use on the RME property is diverse, ranging from relatively undisturbed open space, to open space occasionally mowed or disced, to regularly mowed grassland and finally cultivated row-crop agriculture.

The winter of 2004/05 was exceptionally wet with rainfall totals to date registering 18.36 inches or 135% of normal. This information comes from Santa Barbara County Flood Control Districts Santa Maria rain gauge beginning in September 2004. Significant storm events began in the fall of 2004 and continued on a regular basis through the rainy season easily filling and maintaining the vernal pools throughout the Santa Maria basin. CTS are adapted to our drought cycles and may not even leave the burrow systems without the proper environmental conditions (i.e. ponded water lasting several months). Given the amount of rain and the status of the vernal pools, the winter of 2004/05 has provided the optimal environmental conditions required for CTS breeding.

Drift Fence Study

Installation of the drift fence study began on October 29th with the first night of trapping on November 4, 2005. Protocol recommendations suggest the system should be in place by October 15th but U.S. Fish and Wildlife Biologists approved the later starting date for this study. The drift fence was installed in 45-48 ft segments with gaps of 5 – 8 feet between each segment to allow for animal passage. The fence itself was a type of silt fencing made of woven black plastic approximately three feet high. A small trenching machine was used to dig a six-inch deep trench with the fencing staked in the trench and buried. Four buckets or pit fall traps were installed along each segment of drift fence, two on each side. A total of 904 traps were installed along the fence. During the heavy rains the northern portion of set #8 (300 feet & 24 traps) was washed out by rainwater runoff sheeting off of the agricultural fields to the west. It was decided to abandon that portion of the set, as it appeared this would be a continuing problem with every rain event. The final tally for the drift fence study was 11,000 feet of fencing with 880 pit fall traps.

Pitfall traps/buckets and silt fence

The pit fall traps were two gallon plastic buckets with lids, sponges, drain holes and shade cloth climbing strips. They were installed in such a way as to avoid rodent burrows, ant nests, and areas likely to flood. Some of the areas likely to flood were not apparent until the first good rains of the year.

Maintenance of the system was essential and time consuming, especially with the high winds and heavy rainfall during the winter of 2004/05. Examples of the major maintenance issues included; soil settling, washed out traps, floating traps, and broken and torn silt fence.

Northwest Corner Pond (Photo taken 1/10/05)

The drift fence had to be placed on RME property and was designed to capture CTS moving through the natural areas and toward the aquatic habitat (See the Drift Fence Map).

Sets 1, 2 and 3 surrounded a somewhat natural vernal pool I have labeled the "northwest corner pond". Sets 5, 6, 7 and 8 were placed along the property boundary where grazed grassland bordered the property, covering CTS moving off or onto the property. Sets 4, 9 and10 bisected areas of more interior open space, with set #9 located near one of the golf course ponds. Set #11 was bordered by fairway, cultivated agriculture and the driving range, however excellent upland habitat for CTS exists to the north across Highway 1 and a large wetland is located just to the northeast of the set. The following describes each set.

Set #1 was 1000 feet long with 80 pit fall traps. It ran along the northwest corner of the property between a golf fairway on the east and cultivated agriculture to the west. A natural vernal pool, the northwest corner pond, was located approximately 75 yards to the east of the set #1.

Drift fence Set #8

Set #2 was 250 feet long with 20 pit fall traps. It cut across an area of mowed open space with fairways to the north and south and a moderate patch of coastal sage scrub to the west.

Set #3 was 1000 feet long with 80 pit fall traps. It was placed in an area of mowed open space with fairways to the north and more natural open space to the south.

Set #4 was 2250 feet long with180 pit fall traps. This set bisected a large area of open space vegetated primarily with annual grasses and some coastal sage scrub. Portions of this area was disced sometime in early 2004.

Set #5 was 750 feet long with 60 pit fall traps. This set extended along the western fence line and was bordered by grazed grassland to the

west and natural open space to the east.

Set #6 was 500 feet long with 40 pit fall traps. This set ran along the southwest corner of the property and was bordered by grazed grassland and natural open space.

Set #7 was 750 feet long with 60 pit fall traps. This set extended along a portion of the southern property boundary, bordered by grazed grassland and natural open space.

Set #8 was 1750 feet long with 140 pit fall traps. This was a long stretch of drift fence placed along the eastern boundary with grazed grassland to the east and a combination of cultivated agriculture and fallow agricultural fields to the west.

Set #9 was 1500 feet long with 120 pit fall traps. The western half of this set bisected an open field of annual grassland while the eastern half ran through mowed open space. A moderate sized golf pond (hazard) is just to the north of the set.

Set #10 was 500 feet long with 40 pit fall traps. This is a small "T" set running through a small area of natural land vegetated with annual grasses and coastal sage scrub. There is also a creek drainage just to the east of the set. This natural area is surrounded by golf fairways and cultivated agriculture.

Set #11 was 750 feet long with 60 pit fall traps. It ran through an area of mowed open space, between a fairway to the north and a driving range and strawberry field to the south.

Survey Methods

The drift fence study required the time and experience of five biologists, three permitted to handle and conduct drift fence studies for CTS (Vince Semonsen, Larry Hunt, and Steve Sykes) and two to assist with the general work load (Richard Tanner and Mitch Siemens). Steve Sykes was listed as a subpermittee on Dr. Sam Sweets permit. At least one of the permitted biologists was onsite for all aspects of the study, however, approval was given by USFWS biologists to allow Richard Tanner and Mitch Siemens to open the pit fall traps and to work on maintenance needs without the presence of a permitted biologist. A total of thirteen trap nights were completed during the study. A set of data sheets is attached detailing the dates, weather and trapping results for each of the thirteen trap nights. The rainfall totals listed on the data sheets were obtained from the Flood Control Districts rain gauge located in Santa Maria, CA.

As per the U. S. Fish and Wildlife Service survey protocol the traps were opened if there was any rain during the day or if at 2 pm rain is forecast for the remainder of the day or subsequent night with a 70% chance or greater probability. The traps were opened in the afternoon, before sunset, and checked in the morning the next day. If it was still raining or more rain was forecast the traps were left open, otherwise the traps were closed until the next rain event.

The pit fall traps were visually checked for CTS however on numerous occasions the buckets were partially or completely full of turbid water requiring the biologist to "feel around" for captured animals by hand. Captured CTS were photographed and released in the nearest burrow or were released into the northwest corner pond. Other captured animals were removed and released within the surrounding habitat. Dead animals were removed from the traps with some species collected for preservation at the Santa Barbara Museum of Natural History.

Regular maintenance of the drift fence study continued throughout the study, ensuring the system was in good working order before the next rain event. Given the heavy rainfall and strong winter winds, the maintenance work was ongoing and extensive. Initially, the maintenance work focused on any soil settling and the loss of soil from along the fence and around the buckets (washed away by rainwater runoff). As described earlier a segment of set #8 was abandoned because of the high levels of rainwater runoff coming from the agricultural fields. Buckets along this stretch of drift fence were either washed out or filled in following each storm event. Later as the ground became more saturated our biggest maintenance challenge was preventing buckets from "floating" up out of the ground with each storm event. Placing rocks in the buckets was a moderately successful method of keeping the buckets in the ground, flush with both the fencing and the ground surface. Floating buckets were determined to be a hazard to the animals as a CTS was found dead under a bucket (See attached "Notice of Take" letter dated March 9, 2005).

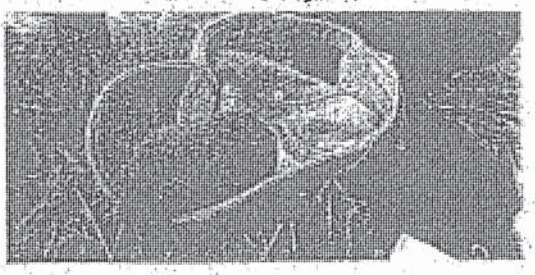
Results

A total of thirteen trap nights were completed beginning on November 4, 2004 and ending on January, 27 2005. A total of nine CTS were captured during the study with one additional animal found dead under one of the buckets. We first captured CTS on the sixth trap night (Dec. 27) when 2 inches of rain fell; three CTS were captured on that night. Seven CTS were captured during the thirteen trap nights and another 3 individuals were found during the removal of the drift fence study on February 25, 2005, including the one dead animal. The U. S. Fish and Wildlife survey protocol for CTS drift fence studies recommends that "Once a CTS is captured, all traps and drift fences should be emptied and removed within 24 hours, and holes in the ground which contain traps should be filled in." This study was extended for one month (7 trap nights) beyond the first capture to add to our knowledge of the salamander's use of the property. Eventually it was decided to end the study in early February 2005.

A second set of data sheets is included with this report documenting the individual tiger salamanders captured during the study. These data sheets include photographs of the animals, capture locations and their release sites. All of the CTS capture locations are also identified on the drift fence study map. CTS can be individually identified by their spot patterns (Steve Sykes, personnel communication). Comparisons of the digital photographs taken of the 9 live CTS captured indicate we had 9 separate individuals, no recaptures. A number of other animals were also captured in the pit fall traps, they included:

Monterey ensatina

Botta's Pocket Gopher



Monterey ensatina (*Ensatina ensatina eschscholtzii*), Black-bellied slender salamander (*Batrachoseps nigriventris*), Pacific treefrog (*Hyla regilla*), Deer mouse (*Peromyscus maniculatus*), Botta's pocket gopher (*Thomomys bottae*), Broad-footed mole (*Scapanus latimanus*), California meadow vole (*Microtus californicus*) and a scorpion. Animals found alive were released into

nearby vegetation however a number of animals were found dead in the traps. Initially, some of the amphibians died because of a lack of moisture in the traps. Later in the study we had too much water in the buckets, resulting in a number of animals drowning, in particular the mammals. Water was added to the buckets to alleviate the initial problem but later in the winter the saturated soil prevented the water from draining out of the buckets, resulting in a number of animals dying.

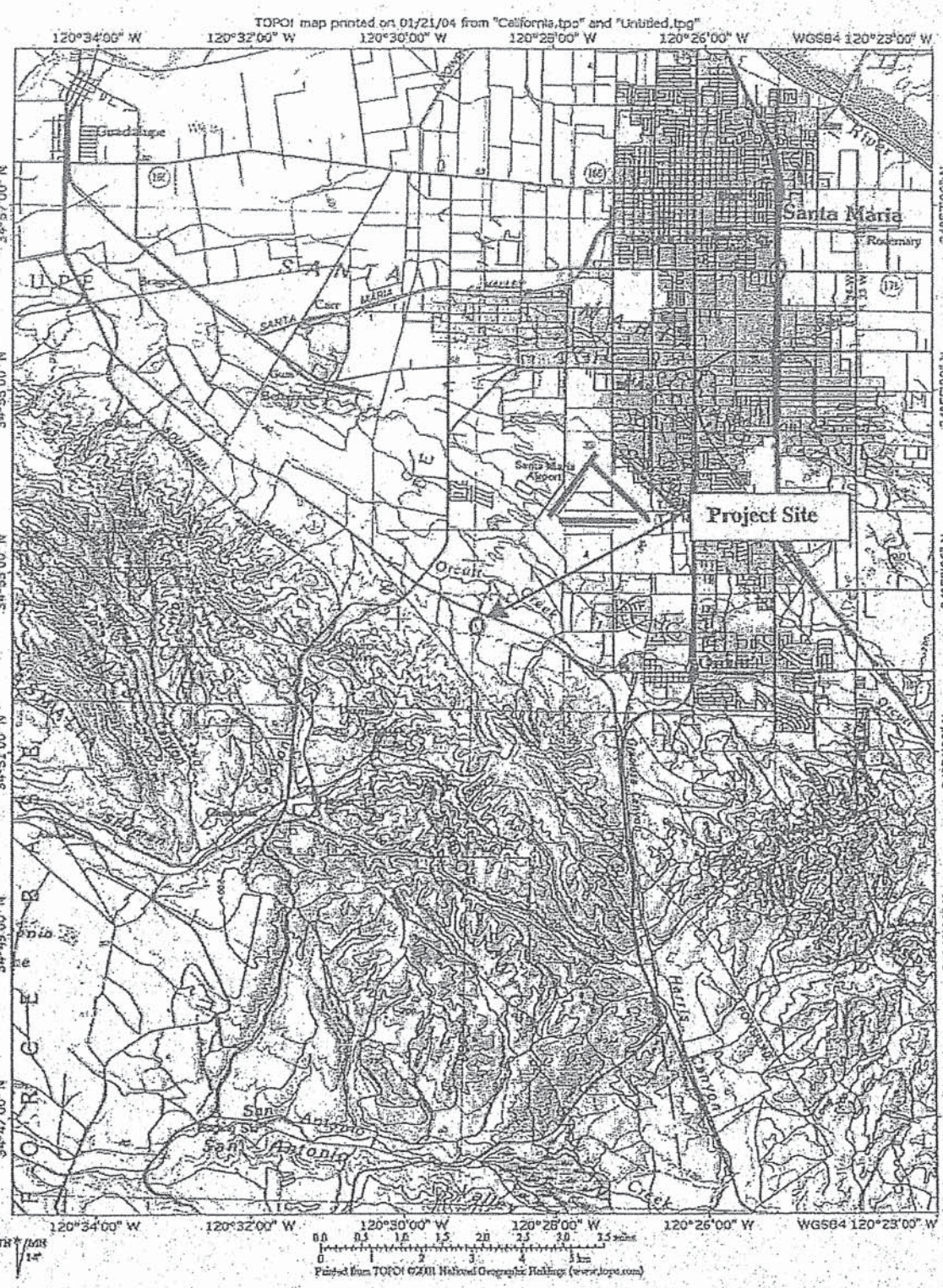
We also captured a number of animals while the drift fence study was closed up, due to an improper seal between the bucket and the lid. CTS female #5 was found in a bucket while the system was closed. It is extremely important that the buckets are placed so they are flush to the drift fence with the soil evenly packed around them. The plastic buckets are easily distorted during the backfill process creating an "out-of-round" situation. This prevents a good seal by the lid and leaves a gap where animals can enter the trap. Without a good seal the lids are also more easily dislodged by wind, feral pigs and human curiosity. Regular maintenance checks looked for trapped animals and attempted to reset and reseal those "out-of-round" buckets.

Conclusion and Recommendations

All of the CTS were captured along sets #1, 2, 3, and 11 located within the northern portion of the property. Sets 1, 2 and 3 surround the northwest corner pond, six of the seven CTS captured along these sets were caught on the drift fence away from the pond. This suggests the animals were moving toward the pond. The three animals found along set #11 were on the north side of the fence, potentially moving toward the northwest corner pond or one of the golf course ponds.

Where the animals were coming from is difficult to determine given the trapping locations and the quality of the surrounding upland habitat. Generally the upland habitat within the Rancho Maria Estates property and the golf course property is poor with only a limited number of gopher burrows and no ground squirrel burrows. The animals captured along set #3 would appear to be utilizing either the Rancho Maria Estates property or the golf course property. CTS caught along sets #1, 2 and 11 could have been utilizing upland habitat on the Rancho Maria Estates property or the golf course property but it is more likely they came from off of the property.

There were three potential breeding ponds within the drift fence study, the northwest corner pond and two golf course ponds (see the drift fence map). Most of the CTS captured during the study were caught in the vicinity of the northwest corner pond and six of them were released into it. It is not known whether this is a CTS breeding pond but it exhibits all the characteristics of one. The two golf course ponds are potential but questionable CTS breeding ponds as they are kept full year round and seem to support fish. Also, drift fence sets near these ponds did not capture any CTS. None of the three ponds occur on the Rancho Maria Estates property so aquatic surveys were not conducted as a part of this study. Protocol level aquatic surveys would be required to determine if any support CTS breeding.



Rancho Maria Estates
CTS & CRLF
Habitat Assessment

Site Location Map

Figure 1

LEVINE·FRICKE

Property Boundary
Proposed Development
Silt Fence

1 inch equals 500 feet
0 250 500 1,000 Feet

N E S W

Rancho Maria Estates

Silt Fence Installation

Project No. 021-10079-00

LFR LEVINE•FRICKE

H:\Client Files\A-C\Bellshire Holdings LLC\Figures\Silt Fence Installation.pdf

CA Tiger Salamander Drift Fence Survey

2004-2005 Rainy Season

Rancho Maria Estates Project

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Opened 12/27/04 and checked 12/28/04 by Steve Sykes

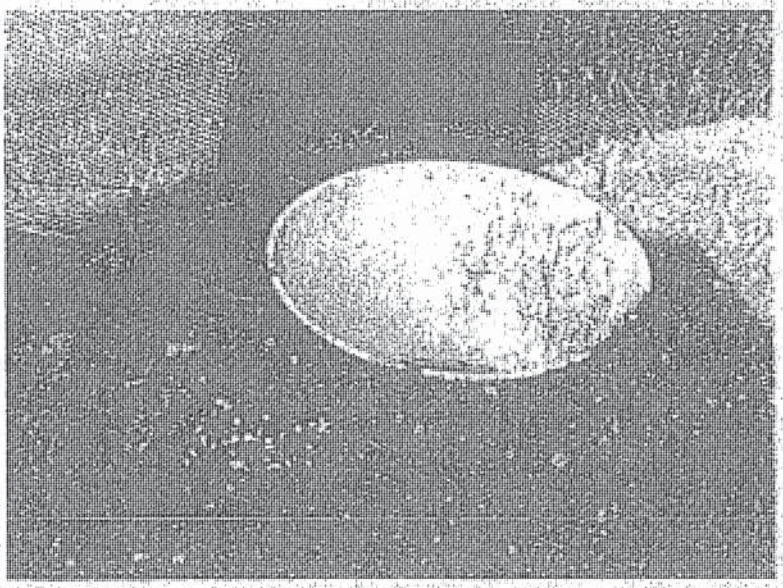
Weather: Intense wind and rain with 2.03 inches recorded over 24 hrs.

Trapping Results: (Species, bucket location & fence side, release location)

CTS male #1 (caught and photographed by Steve Sykes)

Caught on the southern side of drift fence #3 (open grassland side)

Released into a burrow within the grassland.



CA Tiger Salamander Drift Fence Survey

2004-2005 Rainy Season

Rancho Maria Estates Project

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Opened 12/27/04 - Checked 12/28/04 by Steve Sykes

Weather: Intense wind and rain with 2.03 inches of rain recorded over 24 hrs.

Trapping Results: (Species, bucket location & fence side, release location)

CTS male #2

Caught on the west side (agricultural field) of drift fence #1

Released in the Vernal pool (northwest corner pond) approx. 75 yds to the east of drift fence #1

CA Tiger Salamander Drift Fence Survey

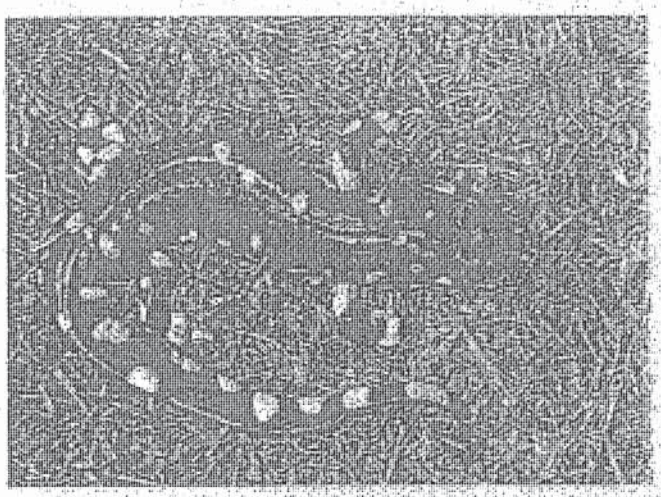
2004-2005 Rainy Season

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Opened 12/28/04 and checked 12/29/04 by Steve Sykes

Weather: 0.38 inches of rain recorded over 24 hrs.

Trapping Results: (Species, bucket location & fence side, release location)

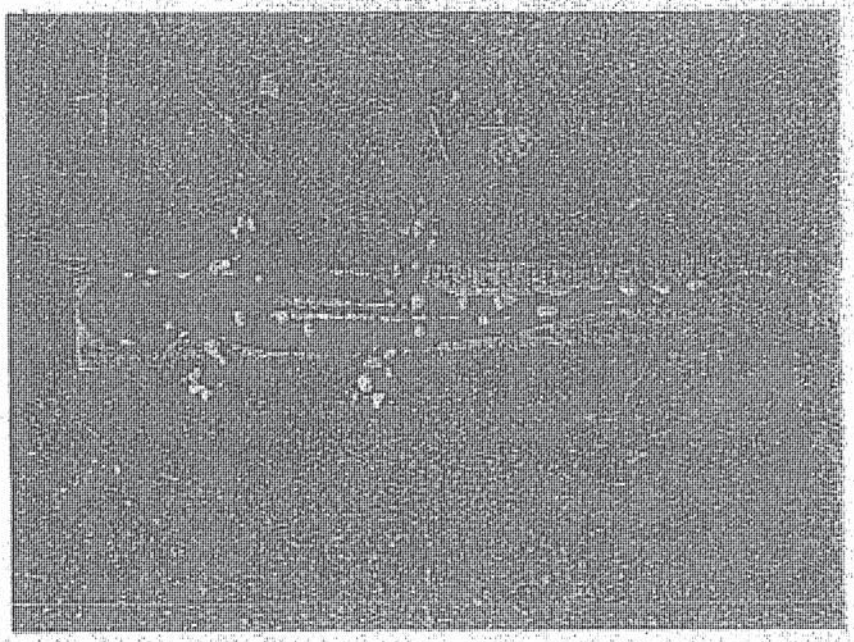


CTS male #3 (caught and photographed by Steve Sykes)

104 mm snout-vent length, 230 mm total length, 42 grams

Caught on the north side (Hwy 1 side) of drift fence #11

Released on the south side of the fence #11 into an open gopher burrow.



CA Tiger Salamander Drift Fence Survey

Rancho Maria Estates

2004-2005 Rainy Season

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Traps opened in the afternoon of December 27, 2004 and checked in the morning of December 28, 2004 by Steve Sykes.

Weather: Intense wind and rain with 2.03 inches falling in the 24 hr recording timeframe.

Trapping Results: (Species, bucket location & fence side, release location)

CTS female #1

Caught on Drift fence #1, along the east side of the fence (the golf course side)

Released into the Vernal pool approximately 75 yds to the east of drift fence #1.

CA Tiger Salamander Drift Fence Survey

2004-2005 Rainy Season

Rancho Maria Estates Project

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Opened on 1/8/05 checked on 1/9/05 by Vince Semonsen and Richard Tanner.

Weather: Intermittent rain, blustery and cool. 24 hour rainfall total = 1.30 inches

Trapping Results: (Species, bucket location & fence side, release location)

CTS female #2 (caught by Vince Semonsen and Richard Tanner, photographed by Vince)

Caught on the south side of drift fence #3 toward the east end of the fence line

Released into an open gopher burrow south of fence #3 in the grassland area.

CA Tiger Salamander Drift Fence Survey

2004-2005 Rainy Season

Rancho Maria Estates Project

Location: CA. Santa Barbara County. Rancho Maria Estates Project Site. APN# 113-250-014
Project location is associated wth the Rancho Maria Public Golf Course

Date/Time (Open & Check Traps): Traps opened Jan 10, 2005
Traps checked Jan 11, 2005 by Vince Semonsen and Richard Tanner

Weather: Rain on and off during the day to continue overnight. 24 hr rainfall total was 0.35 inches

Trapping Results: (Species, bucket location & fence side, release location)

CTS female #3 (caught by Vince Semonsen and Richard Tanner, photographed by R. Tanner)

Caught on the West side of drift fence #1 (the agricultural field side)

Released into the northwest corner pond

APPENDIX I

Soil Descriptions

APPENDIX I
Soil Descriptions

Based on review of the U.S. Department of Agriculture-Natural Resource Conservation Service web soil survey (USDA NCRS 2016), the primary soils on the project site include Tierra loam, Pleasanton sandy loam, Betteravia loamy sand, Corralitos loamy sand, Botella clay loam, Corralitos sand, Botella loam, and rough broken land. A brief summary of the soils located on the project site is provided herein because biological resources can often be associated with various substrates; this is particularly true of some special-status plant species and wetland resources. The U.S. Department of Agriculture, Natural Resource Conservation Service has mapped five soil series in the project area with eight distinct soils. These soils vary widely in depth, fertility, and permeability. The following soils are located on the project site:

- Tierra loam, 5% to 30% slopes, severely eroded
- Pleasanton sandy loam, 2% to 9% slopes
- Betteravia loamy sand, 2% to 9% slopes
- Corralitos loamy sand, 2% to 9% slopes
- Corralitos sand, 0% to 2% slopes
- Botella clay loam, 2% to 9% slopes
- Botella loam, 2% to 15% slopes
- Rough broken land

A brief description of the surface soils present at the project site based on the U.S. Department of Agriculture, Natural Resource Conservation Service (formerly the Soil Conservation Service) "Soil Survey of Santa Barbara County, California, South Coastal Part" (Shipman 1981), is provided below.

Tierra Loam

The Tierra series consists of moderately well drained soils on the toeslopes of terraces, formed in alluvium. In areas where this soil occurs, the mean annual precipitation is 14 to 20 inches, and the mean annual air temperature is 57°F. Tierra loam at 5% to 30% slopes is generally characterized as gently moderately to steeply sloping soil. Vegetation is annual grasses and forbs. This soil type is the most common throughout the project site, covering the southern two-thirds of the site.

Taxonomic class. Tierra: Fine, smectitic, thermic Mollic Palexeralfs.

Typical Pedon

Ap – 0 to 7 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; massive; hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine interstitial and common very fine and medium tubular pores; strongly acid (pH 5.5); gradual smooth boundary. (5 to 10 inches thick).

A12 – 7 to 11 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial, many very fine interstitial and many very fine tubular pores; medium acid (pH 6.0); abrupt smooth boundary. (5 to 14 inches thick).

Pleasanton Sandy Loam

The Pleasanton series consists of well-drained soils on the toeslopes of terraces, formed in alluvium derived from quartzite, sandstone, and shale. In areas where this soil occurs, the mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 59°F. Vegetation is annual grasses and forbs with scattered oaks. Pleasanton sandy loam at 2% to 9% slopes is generally characterized as occurring on nearly level to gently sloping alluvial fans and terraces; this soil type is present in the northwestern portion of the project site.

Taxonomic class. Pleasanton: Fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs.

Typical Pedon

Ap – 0 to 9 inches; grayish brown (10YR 5/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; hard, friable, slightly sticky, slightly plastic; many very fine, common fine and medium roots; common very fine and fine interstitial pores; slightly acid (pH 6.3); abrupt smooth boundary. (5 to 10 inches thick).

A1 – 9 to 21 inches; grayish brown (10YR 5/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; hard, friable, slightly sticky, slightly plastic; many very fine, common fine and medium roots; common very fine and fine interstitial pores; neutral (pH 6.8); clear smooth boundary. (10 to 14 inches thick)

Betteravia Loamy Sand

The Betteravia series consists of moderately well drained loam sand on the toeslopes of terraces, formed in sandy eolian deposits that overlie stratified terrace deposits of fine texture. In areas where this soil occurs, the mean annual precipitation is 13 to 18 inches, and the mean annual air temperature is 57°F. Vegetation consists of annual grasses and forbs with a few shrubs and

scattered live oak trees. The Betteravia loamy sand, 2% to 9% slopes, series is generally characterized as occurring on nearly level to moderately sloping terrain and are on terraces; this soil type is present in the northeastern portion of the project site.

Taxonomic classes. Betteravia: Sandy, mixed, thermic Haplic Durixeralf.

Typical Pedon

Ap – 0 to 10 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky, nonplastic; many fine and very fine roots; common very fine tubular and many very fine interstitial pores; strongly acid (pH 5.1); abrupt wavy boundary. (0 to 10 inches thick).

A1 – 10 to 20 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky, nonplastic; common very fine roots; many very fine interstitial and many very fine tubular pores; strongly acid (pH 5.1); clear wavy boundary. (9 to 15 inches thick).

A2 – 20 to 36 inches; light yellowish brown (10YR 6/4) light loamy sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine roots; many very fine tubular and many very fine interstitial pores; strongly acid (pH 5.2); abrupt wavy boundary. (1 to 20 inches thick).

Corralitos Loamy Sand

The Corralitos series consists of moderately well drained loam and sand on the footslopes of alluvial fans, formed in recent sandy alluvium derived from acid sandstone and related rocks. In areas where this soil occurs, the mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 59°F to 61°F. Vegetation consists of annual grasses, forbs, coyotebush, other shrubs, and a few live oak trees. The Corralitos loamy sand, 2% to 9% slopes, series is generally characterized as occurring on alluvial fans and in small valleys; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Corralitos. Mixed, thermic Typic Xeropsamments.

Typical Pedon

A11 – 0 to 8 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 4/3) moist; single grained; loose; many very fine, common fine and few medium and coarse roots; many very fine and fine interstitial pores; medium acid (pH 6.0); abrupt wavy boundary. (3 to 10 inches thick).

A12 – 8 to 20 inches; grayish brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine

roots, and few medium and coarse roots; many very fine and fine interstitial pores and many very fine, fine, and medium tubular pores; medium acid (pH 6.0); gradual irregular boundary. (6 to 13 inches thick).

A13 – 20 to 32 inches; grayish brown (10YR 5/2) loamy sand, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; many very fine and fine interstitial and many fine and common medium tubular pores; medium acid (pH 6.0); gradual irregular boundary. (7 to 12 inches thick).

Corralitos Sand

The Corralitos series consists of somewhat excessively drained sand on the footslopes of alluvial fans, formed in recent sandy alluvium derived from acid sandstone and related rocks. In areas where this soil occurs, the mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 59°F to 61°F. Vegetation consists of annual grasses, forbs, coyotebush, other shrubs, and a few live oak trees. The Corralitos sand, 0% to 2% slopes, series is generally characterized as occurring on alluvial fans and in small valleys; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Corralitos. Mixed, thermic Typic Xeropsamments.

Typical Pedon

A11 – 0 to 8 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 4/3) moist; single grained; loose; many very fine, common fine and few medium and coarse roots; many very fine and fine interstitial pores; medium acid (pH 6.0); abrupt wavy boundary. (3 to 10 inches thick).

A12 – 8 to 20 inches; grayish brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots, and few medium and coarse roots; many very fine and fine interstitial pores and many very fine, fine, and medium tubular pores; medium acid (pH 6.0); gradual irregular boundary. (6 to 13 inches thick).

A13 – 20 to 32 inches; grayish brown (10YR 5/2) loamy sand, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; many very fine and fine interstitial and many fine and common medium tubular pores; medium acid (pH 6.0); gradual irregular boundary. (7 to 12 inches thick).

Botella clay loam

The Botella series consists of very deep, well drained sand on the footslopes or toeslopes of small valley bottoms and on alluvial fans, formed in alluvium derived from mixed rock sources on stream terraces and alluvial fans. In areas where this soil occurs, the mean annual precipitation is 15 to 28 inches, and the mean annual air temperature is 56°F to 62°F. Vegetation consists of annual grasses and forbs with scattered oak trees and coastal sagebrush in some areas. The Botella clay loam, 2% to 9% slopes, series is generally characterized as occurring on benches, alluvial fans, terraces and valleys; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Botella. Fine-loamy, mixed, superactive, thermic Pachic Argixerolls.

Typical Pedon

Ap – 0 to 23 cm (0 to 9 inches); gray (N 5/) clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; common very fine roots; few very fine interstitial, common very fine, fine and medium tubular pores; moderately acid (pH 6.0); gradual smooth boundary. (20 to 61 cm or 8 to 24 inches thick).

BAt – 23 to 36 cm (9 to 14 inches); gray (N 5/) silty clay loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to moderate medium angular blocky; extremely hard, firm, sticky and plastic; common very fine roots; few very fine interstitial and common very fine, few fine tubular pores; few thin clay films line tubular pores moderately acid (pH 6.0) gradual wavy boundary. (0 to 20 cm or 0 to 8 inches thick).

Bt1 – 36 to 71 cm (14 to 28 inches); gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to strong medium angular blocky; extremely hard, firm, very sticky, and very plastic; common very fine roots; few very fine interstitial and many very fine tubular pores; common thin clay films on faces of peds; slightly acid (pH 6.4) gradual smooth boundary. (20 to 41 cm or 8 to 16 inches thick).

Bt2 – 71 to 103 cm (28 to 41 inches); gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; strong medium angular blocky structure; extremely hard, firm, very sticky and very plastic; common very fine roots; few very fine interstitial and common very fine tubular pores; many thin clay films on faces of peds and lining tubular pores; neutral (pH 6.8); gradual smooth boundary. (15 to 36 cm or 6 to 14 inches thick).

Botella loam

The Botella series consists of very deep, well drained sand on the toeslopes of small valley bottoms and on alluvial fans, formed in alluvium derived from mixed rock sources on stream terraces and

alluvial fans. In areas where this soil occurs, the mean annual precipitation is 12 to 22 inches, and the mean annual air temperature is 57°F. Vegetation consists of annual grasses and forbs with scattered oak trees and coastal sagebrush in some areas. The Botella loam, 2% to 15% slopes, series is generally characterized as occurring in valleys; this soil type is present in the northeastern portion of the project site.

Taxonomic classes. Botella. Fine-loamy, mixed, superactive, thermic Pachic Argixerolls.

Typical Pedon

Ap – 0 to 23 cm (0 to 9 inches); gray (N 5/) clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; common very fine roots; few very fine interstitial, common very fine, fine and medium tubular pores; moderately acid (pH 6.0); gradual smooth boundary. (20 to 61 cm or 8 to 24 inches thick).

BAt – 23 to 36 cm (9 to 14 inches); gray (N 5/) silty clay loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to moderate medium angular blocky; extremely hard, firm, sticky and plastic; common very fine roots; few very fine interstitial and common very fine, few fine tubular pores; few thin clay films line tubular pores moderately acid (pH 6.0) gradual wavy boundary. (0 to 20 cm or 0 to 8 inches thick).

Bt1 – 36 to 71 cm (14 to 28 inches); gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to strong medium angular blocky; extremely hard, firm, very sticky, and very plastic; common very fine roots; few very fine interstitial and many very fine tubular pores; common thin clay films on faces of peds; slightly acid (pH 6.4) gradual smooth boundary. (20 to 41 cm or 8 to 16 inches thick).

Bt2 – 71 to 103 cm (28 to 41 inches); gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; strong medium angular blocky structure; extremely hard, firm, very sticky and very plastic; common very fine roots; few very fine interstitial and common very fine tubular pores; many thin clay films on faces of peds and lining tubular pores; neutral (pH 6.8); gradual smooth boundary. (15 to 36 cm or 6 to 14 inches thick).

Rough Broken Land

Rough broken land consists of shallow (0 to 10 inches to paralithic bedrock), somewhat excessively drained land, formed in residuum weathered from sandstone or semi-consolidated gravelly sediments. The typical profile is limited to weathered bedrock. This soil type is present in a very small area in the southeastern portion of the project site.

APPENDIX J ~~F~~

Draft Open Space Management Plan

Open Space Management Plan for The Neighborhoods of Willow Creek & Hidden Canyon

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TABLE OF CONTENTS

Section **Page No.**

1 INTRODUCTION 1
1.1 Site Location 1
1.2 Project Description 1
1.3 Biological Setting 2
1.4 Supporting Studies and Documents 2

2 PLAN PURPOSE AND GOALS 7
2.1 Purpose of Plan 7
2.2 Goals of Habitat Management 7

3 REGULATORY CONTEXT 9
3.1 Project Responsibility 9
3.1.1 Applicant 9
3.1.2 Native Habitat Restoration Contractor 9
3.1.3 County-Approved Biologist 10
3.2 Conditions of Approval 10
3.3 Federal and State Regulatory Agency Jurisdiction 11
3.4 Local Laws, Ordinances, Regulations, and Standards 11
3.4.1 Santa Barbara County *Environmental Thresholds and Guidelines Manual* 11
3.4.2 Orcutt Community Plan 11

4 EXISTING BASELINE CONDITIONS 13
4.1 Topography and Soils 13
4.2 Vegetation Communities 13
4.2.1 Herbaceous Alliances and Stands 13
4.2.2 Shrubland Alliances and Stands 16
4.2.3 Woodland, Windbreaks, and Tree Clusters 17
4.3 Hydrologic Features 19
4.4 Special-Status Species 19
4.4.1 Special-Status Plant Species 19
4.4.2 Special-Status Wildlife Species 20
4.5 Native Trees 20

5 MITIGATION STRATEGY 21
5.1 Habitat Mitigation 21
5.2 Jurisdictional ~~Water~~ Aquatic Feature Mitigation 23

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

5.3 Special-Status Species 24
5.4 Protected Trees 25

6 IMPLEMENTATION PLAN 27
6.1 Pre-Mitigation Restoration/Enhancement Implementation Activities 27
6.1.1 Special-Status Plant Species Surveys 27
6.1.2 Container and Seed Stock 27
6.1.3 Clearing, Grubbing, and Weed Control 27
6.1.4 Rodent Control 28
6.1.5 Grading and Soil Protection 29
6.1.6 Erosion Control 29
6.1.7 Temporary Irrigation System 29
6.2 Mitigation Restoration/Enhancement Implementation 30
6.2.1 Planting 30
6.2.2 Seeding 30
6.2.3 Fencing and Signage 30
6.2.4 Planting Methods 30

7 MAINTENANCE ACTIVITIES 33
7.1 Irrigation 33
7.2 Invasive Non-Native Plant Prevention and Management 33
7.2.1 Non-Native Plant Species and Weed Control 34
7.2.2 Target Species 34
7.2.3 Hand Removal 34
7.2.4 Mechanical Removal 36
7.2.5 Chemical Herbicide Treatment 36
7.3 Remedial Planting/Seeding 37
7.4 Trash and Debris Removal 37
7.5 Erosion Control 37
7.6 Fuel Management Activities 38

8 MONITORING PROGRAM 41
8.1 Success Criteria 41
8.2 Required Data Collection 42
8.3 Monitoring Frequency 43
8.4 Reporting 44

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

8.5 Contingency Measures 45
8.6 Completion of Mitigation 45
8.6.1 Notification of Completion 45
8.6.2 Agency Confirmation 45

9 REFERENCES 47

APPENDICES

A Orcutt Community Plan - Biological Policies, Actions & Development Standards

FIGURES

1 Vicinity and Regional Map 3
2 Open Space Management Area 5

TABLES

1 Summary of Impacts Existing Vegetation Communities and Their Acreage within the Project Site 21
2 Summary of Minimum and Maximum Compensatory Mitigation 23
3 Summary of Impacts and Proposed Mitigation to Jurisdictional Resources Associated with the Project Site 24
4 Non-native Plant Species with Cal-IPC Rating 35
5 Preliminary Success Criteria for On-Site Restoration Areas 41
6 Preliminary Monitoring Schedule[1] 44

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1 INTRODUCTION

Dudek prepared this Open Space Management Plan (OSMP) for Coastal Properties LTD in support of The Neighborhoods of Willow Creek & Hidden Canyon project (project) located west of the community of Orcutt, in unincorporated Santa Barbara County. The OSMP details implementation guidelines for site preparation, revegetation, restoration, preservation, maintenance, and monitoring. This OSMP, and the components described herein, are intended to fulfill the requirements of the Orcutt Community Plan (OCP) (County 2004), BIO-O-1.2 and DevStd BIO-O-1.8 as well as mitigation guidelines put forth in the *Environmental Thresholds and Guidelines Manual* (County 2008, revised 2015). Implementation and success of the OSMP is the responsibility of Coastal Properties LTD or subsequent ownership entity ("Owner"). This document will remain in draft form subject to revisions during the permitting and consultation process described in the Biological Resources Assessment Report (BRA) (Dudek 2019a). The final OSMP will incorporate all of the mitigation requirements from project permits related to biological resources and will include details on the mitigation locations, planting palettes, specific success criteria, and reporting requirements.

1.1 Site Location

The 189.2-acre Neighborhoods of Willow Creek & Hidden Canyon project site is located on State Route 1 (SR 1), approximately two miles west of Old Town Orcutt, between the intersection of Black Road to the west and Solomon Road to the east in the northwestern portion of the Orcutt Community Plan (OCP) area (a part of a 340-acre site known as Key Site 21), in the Third Supervisorial District (APN 113-250-015, -016, and -017).The project site is bounded by privately owned land under agricultural cultivation to the east, ranchland and agricultural cultivation to the west, and ranchland to the south (*Figure 1*).

The proposed Neighborhoods of Willow Creek & Hidden Canyon includes 96.7 acres of private undisturbed open space in the two neighborhoods (12.5 acres of natural open space are located on APN 113-250-015 which also includes the Rancho Maria Golf Course entry, but is not a part of either of the tentative tract maps). These undisturbed open spaces make up approximately 51% of the overall Neighborhood Specific Plan area. In addition, there are another 29.8 acres of private managed open space includes landscape, trailhead, trails, and fuel modification areas. Open space areas are displayed on *Figure 2*.

1.2 Project Description

The proposed project includes the development of 146 residential units along with associated roads and other infrastructure within a portion of the property located in APNs 113-250-016 and -017 totaling

approximately 92.5 acres. An existing entrance to the project site will be utilized within APN 113-250-015; however, the remainder of this parcel will be preserved as undisturbed open space. Undisturbed open space areas outside of the development footprint, which comprise the overall open space management area described in this plan, total approximately 96.7 acres (*Figure 2*). The residential development would be located outside of the existing Rancho Maria Golf Course footprint.

1.3 Biological Setting

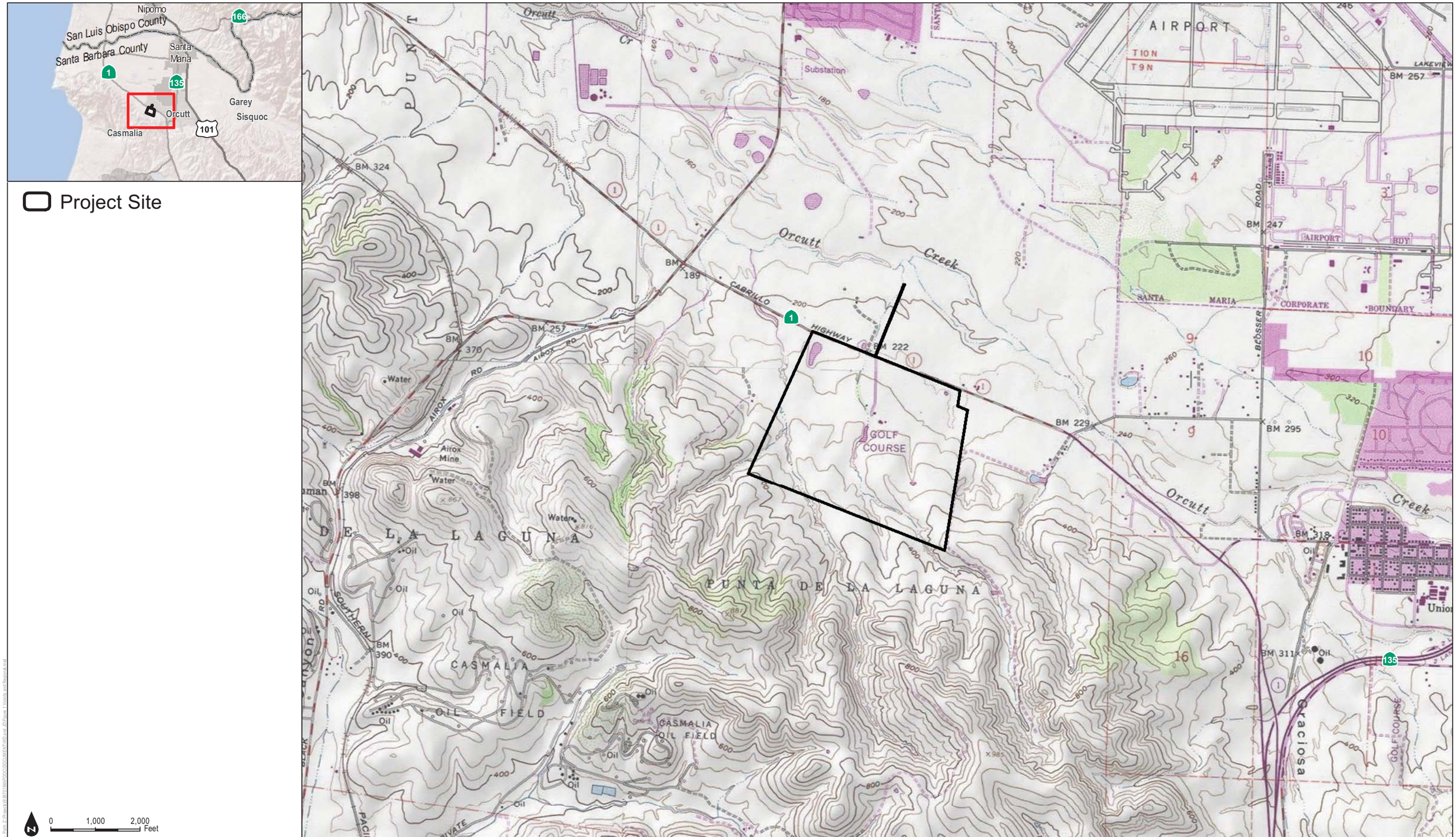
The project site occurs at the base of the northern flanks of the east-west trending Casmalia Hills. The topography varies from flat to gentle south to north slopes that reach 420 feet above mean sea level (amsl) along the southern perimeter of the site and descend to 220 amsl in the northwest corner of the property. Three unnamed ephemeral waterways traverse the project site, directing water flow generally from south to north into Orcutt Creek and ultimately into the Santa Maria River and the Pacific Ocean.

Open space associated with the project includes both native and non-native vegetation communities, including arroyo willow thickets, coast live oak woodland, California sagebrush scrub, coyote brush scrub, purple needle grass grassland, perennial rye grass grassland, California annual grassland, and eucalyptus groves. Additional details regarding the vegetation communities present and the biological setting within the overall open space area are provided in the BRA (Dudek 2019a).

1.4 Supporting Studies and Documents

The following supporting studies and documents were referenced while preparing this OSMP:

- Biological Resources Assessment Report for The Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2019a)
- The Rancho Maria Estates Sensitive Species and Habitat Survey (LFR 2005)
- Orcutt Community Plan (Santa Barbara County 2004)
- Environmental Thresholds and Guidelines Manual (County 2008, revised 2015)
- Addendum to the Biological Resources Assessment Report and Biological Resources Memo for the Sewer Line Associated with The Neighborhoods of Willow Creek & Hidden Canyon Project (Dudek 2019b)
- Tree Memo for The Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2019c)
- Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2018)



SOURCE: ArcGIS Online Basemap, USA Topo Maps

DUDEK

FIGURE 1

Vicinity and Regional Map

Open Space Management Plan for The Neighborhoods of Willow Creek and Hidden Canyon Project

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AERIAL SOURCE: NAIP 2014

DUDEK

FIGURE 2

Open Space Management Area

Open Space Management Plan for The Neighborhoods of Willow Creek and Hidden Canyon Project

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2 PLAN PURPOSE AND GOALS

2.1 Purpose of Plan

The purpose of the OSMP is to provide a framework for the management of preserved areas as open space as well as to direct mitigation activities required during the permitting and consultation process. Additionally, the OSMP will provide guidelines for maintenance and biological monitoring of the restoration and enhancement areas, along with management of the overall preserved open space areas. Management of preserved open space will focus on maintaining and enhancing the existing intact native habitat. Restoration and enhancement will be designed to fulfill mitigation requirements while improving the overall habitat quality of the open space towards the goal of establishing self-sustaining habitat capable of supporting viable habitat for regional wildlife and plant species. Maintenance activities will occur in consultation with the County approved biologist. Because the goal of the OSMP is to establish a natural system that can support itself with little or no maintenance, the primary effort of the OSMP is concentrated in the first few seasons of plant growth following the enhancement effort, when weeds (non-native invasive plant species) can easily out-compete native plants. The intensity of maintenance activity is expected to subside each year as the native plant materials become more established and local competition from non-native plants for resources on the site is minimized through direct removal of non-natives from the site. However, maintenance will include periodic weeding as outlined herein. The risk of large-scale re-invasion of weedy non-native plants onto the site can be adequately minimized during the first two to three years (approximate) by adhering to the specific maintenance and management guidelines that are presented below.

2.2 Goals of Habitat Management

The primary goal of this OSMP is to provide a framework for management of preserved areas and mitigation of habitat to address permanent impacts related to the project in collaboration with the regulatory agencies and the County. The mitigation framework is based on the habitat function and values, methods of mitigation/ revegetation, and success criteria for mitigation areas. The mitigation will compensate for the permanent impacts associated with the development of The Neighborhoods of Willow Creek & Hidden Canyon and long-term preservation of open space areas. Prior to commencement of the project, the Owner shall coordinate with appropriate regulatory agencies and the County for guidance on mitigation ratios for project impacts.

General goals that have been incorporated into the OSMP to the greatest extent possible include:

- Avoid direct or indirect impact to sensitive biological resources
- Increase the wildlife habitat and botanical values of the existing habitats through restoration and enhancement actions in and near the existing native habitats
- Preserve open space as habitat for wildlife and restrict public recreational access
- Maintain open space areas and create viable native habitat in these areas adjacent to existing native habitat to increase continuous amounts of native habitat
- Enhance native species diversity
- Create and restore an aesthetically pleasing and natural landscape feature to visually benefit nearby residents
- Design residential neighborhoods to be harmonious with the surrounding open space
- Removal of non-native plants species
- Minimize disturbance to adjacent preserved native habitats during implementation of the OSMP
- Salvage and reuse existing native plant species and topsoil to the maximum extent possible
- Ensure that no single species constitute more than 50% of vegetative cover
- Prevent impacts to special status species.

3 REGULATORY CONTEXT

3.1 Project Responsibility

3.1.1 Applicant

This OSMP is submitted on behalf of the applicant, the Owner. The representative for the Owner is Tony Wells. The Owner shall be financially responsible for all negotiations and costs associated with the implementation, monitoring, maintenance, and protection of the restoration and enhancement revegetation areas defined in this document and as required by the County of Santa Barbara.

The Owner agrees to the following:

- Payment of a surety bond, if required
- Contractual agreement for installation of the OSMP
- Contractual agreement for maintenance agreement
- Payment of a monitoring deposit at plan check, if required.

3.1.2 Native Habitat Restoration Contractor

OSMP implementation shall be provided by a Native Habitat Restoration Contractor possessing a valid California landscape contractor's license, who has previous experience with native habitat vegetation in the region, and who can demonstrate at least three successful similar native vegetation installation projects in southern California will be utilized. In the proposal for services, the Native Habitat Restoration Contractor must demonstrate knowledge of techniques for growing and maintaining native plant species. Actual on-the-ground installation can be performed by non-licensed persons. However, a Native Habitat Restoration Contractor possessing a valid California landscape contractor's license and knowledge of native plant species shall be present to oversee the work.

The Native Habitat Restoration Contractor shall be responsible for conformance to the final OSMP. The contract documents shall include detailed graphic planting plans and written specifications that are in substantial conformance with the information and direction contained herein. The Native Habitat Restoration Contractor's responsibility shall continue until the end of the post-installation plant establishment, maintenance, and warranty period, for a time period provided for in the Conditions of Approval. Final acceptance shall be granted by the County and the County-approved biologist ("Biologist") upon completion of this milestone. The Native Habitat Restoration Contractor will not be released from contractual obligations until written

notification is received from the County, in consultation with the Biologist, certifying satisfactory completion of all required installation tasks as defined in the installation contract, contract documents, and this OSMP.

After installation of all container plants and cuttings, the Owner will have long-term services performed by an experienced Native Habitat Restoration Contractor for a duration as set forth in the Conditions of Approval and/ or regulatory agency permits. The Native Habitat Restoration Contractor shall possess a valid California landscape contractor's license, have previous experience with native habitat vegetation in the region, and can demonstrate at least three successful similar native vegetation installation projects in southern California. In addition, the Native Habitat Restoration Contractor must demonstrate knowledge of techniques for growing and maintaining native plant species. Actual on-the-ground installation can be performed by non-licensed persons. However, a Native Habitat Restoration Contractor possessing a valid California landscape contractor's license and knowledge of native plant species shall be present to oversee the work.

Maintenance work shall be performed in accordance with the final OSMP, which will incorporate specific Conditions of Approval and regulatory agency permit requirements related to long-term maintenance. Other maintenance tasks not described in the final OSMP will be carried out per the Biologist's recommendations.

3.1.3 County-Approved Biologist

A qualified biologist approved by the County ("Biologist"), shall be retained to monitor implementation and perform monitoring, as outlined in this OSMP. The Biologist may be an individual or team of individuals and must demonstrate experience in native habitat restoration. The Biologist must demonstrate an understanding of local plant community ecology and native habitat restoration techniques, and must have expertise in native plant species and non-native plant species identification.

The Biologist shall help ensure that the Owner follows the guidelines of this OSMP including biological monitoring of project installation, verification that the activities laid out in this OSMP were correctly installed, and shall provide monitoring and reporting throughout the designated maintenance and monitoring period set forth in the Conditions of Approval.

3.2 Conditions of Approval

If performance criteria are not met for any portion of the monitoring period or if the final performance criteria are not met, the Biologist will prepare an analysis of the cause(s) of failure within the appropriate annual report and, if determined necessary by permitting agencies,

propose remedial action for agency approval. If mitigation revegetation areas do not meet performance criteria as determined by the Biologist, the Owner's maintenance and monitoring obligations will continue until contingency measures are negotiated and implemented to bring the mitigation site into compliance with the performance criteria or until the permitting agencies grant final project permit compliance/approval.

3.3 Federal and State Regulatory Agency Jurisdiction

Waters of the U.S. and State are subject to the jurisdiction of U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). Consultation with these regulatory agencies, including submittal of permit applications for project related impacts, will involve determinations of appropriate mitigation for impacts. Along with impacts to jurisdictional waters, CDFW may require mitigation for impacts to sensitive vegetation communities located within the project footprint.

3.4 Local Laws, Ordinances, Regulations, and Standards

3.4.1 Santa Barbara County *Environmental Thresholds and Guidelines Manual*

The Santa Barbara County *Environmental Thresholds and Guidelines Manual* (County 2008, revised July 2015) provides general mitigation guidelines for biological impacts which include avoidance, on-site and off-site mitigation, habitat replacement and compensation guidelines, and consultation on mitigation and project design. These guidelines will direct the mitigation components and design included within project open space. Coordination with the County may be necessary to determine the appropriate mitigation strategy for the project location.

3.4.2 Orcutt Community Plan

As stated in Section 1, the OSMP will guide the on-site mitigation required by DevStd BIO-O-1.2 and BIO-O-1.8, which states that the "County shall require development to restore or enhance like-kind habitat either on-site or off-site" (County 2004). Mitigation components and design incorporated into the OSMP will follow the standards described in the OCP. Additional biological policies, actions, and development standards from the OCP are provided in *Appendix A*.

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4 EXISTING BASELINE CONDITIONS

4.1 Topography and Soils

Based on review of the U.S. Department of Agriculture-Natural Resource Conservation Service web soil survey (USDA NCRS 2016), the primary soils present within the open space area includes Betteravia loamy sand, Tierra loam, Tierra sandy loam, Chamise shaly loam, Pleasanton sandy loam, Corralitos loamy sand, Botella loam, gullied land, and rough broken land. The BRA provides a detailed description of the soils present within the project site; however, two soil types, Chamise sandy loam and gullied land were not located within the development footprint and are briefly described below.

*Chamise Shaly Loam, 30 to 75 percent slopes***.** The Chamise series consists of well drained soils on the toeslopes of terraces, which are formed in alluvium. In areas where this soil occurs, the mean annual precipitation is 12 to 20 inches, and the mean annual air temperature is 57°F. Vegetation is annual grass, forbs, scattered live oak, black sage, and California sagebrush. Chamise shaly loam at 30% to 75% slopes is generally characterized as occurring on moderate to steep slopes; this soil type is present in the southeastern portion of the open space area.

*Gullied Land***.** Gullied land consists of shallow to relatively deep (0 to 60 inches to restrictive layer) soil, formed in drainageways. This soil type is present within the riparian corridors in the central and southwestern portions of the open space area.

4.2 Vegetation Communities

Vegetation community mapping was documented in the BRA. This section describes the vegetation communities and wildlife habitats observed in the biological survey and open space areas that will be included in the open space management. A total of 13 general physiognomic and physical location types were mapped during field surveys, 10 of which are identified by the Manual of California Vegetation, 2nd Edition (MCV2) (Sawyer et al. 2009) and/or the Natural Communities List (NCL) (CDFG 2010). These vegetation communities and land cover types and described briefly below. Additional details on the vegetation community mapping results can be found in the Section 4.1 of the BRA.

4.2.1 Herbaceous Alliances and Stands

4.2.1.1 Herbaceous Dominated Habitats (Upland)

California Annual Grassland (CAG) (MCV1) (Sawyer and Keeler-Wolf 1995) is described as being dominated by annual grasses and herbs in the ground layer including bromes (*Bromus* sp.),

California poppy (*Eschscholzia californica*), filaree (*Erodium* sp.), lupine (*Lupinus* sp.), mustards (*Brassica* sp.), and oat (*Avena* sp.). Although annual brome grasses form the dominant portion of the plant species composition, native annual forbs constitute a significant cover percent during the blooming period in select areas. California annual grassland comprises ~~98.02~~ 157.21 acres~~, or 51.8 percent~~, of the vegetation cover in the ~~project site~~ Key Site 21 and sewer line easement (*Figure 4* in the BRA). Permanent impacts to California annual grassland will total 72.54 acres (*Table 1*). Temporary impacts to California annual grassland will total 0.02 acres (*Table 1*). A total of ~~25.48~~ 84.65 acres of California annual grassland will be preserved on-site. The remaining California annual grassland within the open space management area could be utilized as restoration and enhancement areas for the establishment of native vegetation community mitigation sites.

The *Purple Needle Grass Grassland Alliance* (PNGG) (MCV2 and NCL) occurs along the entire coast of California, the Central Valley, and the western Mojave. It includes the perennial bunchgrass purple needlegrass as a dominant or co-dominant grass. Purple needle grass grassland occurs in patches on-site, particularly in the central-western and southeastern portions of the site, where the largest patches occurs. These patches comprise a total of ~~1.88~~ 1.86 acres~~, or approximately 1.0 percent,~~ of the vegetation cover in Key Site 21 and the sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Several smaller patches occur on the site; however, these patches do not meet the County criteria of 0.25-acre patch size. Permanent impacts to purple needle grass grassland will total 1.50 acres (*Table 1*). A total of ~~0.33~~ 0.36 acre of purple needle grass grassland will be preserved on-site. Mitigation for impacts to purple needlegrass grassland may include on-site restoration within the preserved open space. Opportunities for purple needlegrass grassland mitigation are available within land currently characterized as California annual grassland; however, the specific mitigation locations will be selected based on soils, topography, slope, and aspect suitable for establishment of this vegetation community.

The *Perennial Rye Grass Grassland* (RGG) (MCV2 and NCL) vegetation community is dominated largely by beardless wildrye (*Elymus triticoides*) and also includes wild oat and Italian ryegrass in the herbaceous layer. One patch of perennial rye grass grassland occurs in the central-western portion of the site surrounded by annual brome grasslands and coyote brush scrub. This vegetation community occurs within an area identified as significant habitat by the County (2004). This community comprises 0.73 acre~~, or 0.3 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to perennial rye grass grassland will total 0.73 acres (*Table 1*). Mitigation for impacts to perennial rye grass grassland may include on-site restoration within the preserved open space. Opportunities for perennial rye grass grassland mitigation are available within land currently characterized as California annual grassland supporting similar topography to the existing

perennial rye grass grassland vegetation community and adjacent to the unnamed tributary which bisects Key Site 21, providing a natural water source for the restored perennial rye grass vegetation and wetland and riparian vegetation, which will be installed closer to the creek. Since State and Federal agencies will have input in the placement and extent of wetland and riparian vegetation in this area, the design is currently conceptual, with the final design pending 404/401 permitting from the USACE/RWQCB and a streambed alteration agreement from the CDFW.

FORB-DOMINATED HABITATS

Bristly Ox-tongue (BOT) is not recognized in MCV2 or NCL. Bristly ox-tongue patches are dominated by bristly ox-tongue (*Helminthotheca echioides*). These patches occur throughout California except in deserts and the Great Basin. Most commonly, bristly ox-tongue occurs in seasonally wet places near the coast of southern California. This vegetation community occurs within an area identified as significant habitat by the County (2004). Bristly ox-tongue comprises ~~0.93~~ 0.92 acre ~~or 0.4 percent~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to bristly ox-tongue will total 0.69 acres (*Table 1*). A total of ~~0.24~~ 0.23 acre of bristly ox-tongue will be preserved on-site. This non-native vegetation community was determined to occur within a jurisdictional ~~water~~ wetland (Dudek 2019d), and mitigation for impacts are proposed in *Table 2*. It is anticipated that mitigation for this vegetation community will consist of a native herbaceous vegetation community adapted to similar edaphic and hydrologic conditions to be located adjacent to the unnamed tributary, which bisects Key Site 21. Since State and Federal agencies will have input in the placement and extent of wetland and riparian vegetation in this area, the design is currently conceptual, with the final design pending 404/401 permitting from the USACE/RWQCB and a streambed alteration agreement from the CDFW.

The *Cattail Marshes* (CTM) (MCV2 and NCL) vegetation community is dominated by broadleaf cattail (*Typha latifolia*). Throughout California, the cattail marsh alliance occurs in brackish or semi-permanently flooded freshwater marshes. Cattail marshes have a continuous or intermittent herbaceous canopy of less than 1.5 meters (4.9 feet) in height. This alliance occurs from sea level to 350 meters (1,148 feet) amsl (Sawyer et al. 2009). This vegetation community occurs within an area identified as significant habitat by the County (2004). Cattail marshes comprise 0.13 acre ~~or 0.06 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to cattail marshes will total 0.12 acre (*Table 1*). A total of 0.01 acre of cattail marsh will be preserved on-site. This non-native vegetation community was determined to occur within a jurisdictional ~~water~~ wetland (Dudek 2018), and mitigation for impacts are proposed in *Table 2*. Mitigation for impacts to this vegetation community is anticipated to consist of revegetation within the preserved open space adjacent to the unnamed tributary, which bisects Key Site 21. The mitigation area will be sited in areas

currently mapped as California annual grassland that support similar edaphic and hydrologic conditions necessary for establishment and persistence of this wetland adapted vegetation community. Since State and Federal agencies will have input in the placement and extent of wetland and riparian vegetation in this area, the design is currently conceptual, with the final design pending 404/401 permitting from the USACE/RWQCB and a streambed alteration agreement from the CDFW.

4.2.2 Shrubland Alliances and Stands

4.2.2.1 Coastal Scrub

California Sagebrush Scrub Alliance (MCV2 and NCL) contains coastal sagebrush (*Artemisia californica*) as the sole or dominant shrub species. It has a continuous or intermittent shrub canopy of less than 2 meters (7 feet) in height with a variable ground layer. This alliance often occurs on steep, north-facing slopes and rarely in flooded, low-gradient deposits along streams in shallow alluvial or colluvial-derived soils. California sagebrush scrub comprises approximately ~~4.47~~ 5.91 acres~~, or 2.4 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to California sagebrush scrub will total 0.01 acre (*Table 1*). A total of ~~4.46~~ 5.90 acres of California sagebrush scrub will be preserved on-site. Mitigation for impacts to California sagebrush scrub may include on-site restoration within the preserved open space. Opportunities for California sagebrush scrub mitigation are available within land currently characterized as California annual grassland; however, the specific mitigation locations will be selected based on soils, topography, slope, and aspect suitable for establishment of this vegetation community.

Coyote Brush Scrub Alliance (MCV2 and NCL) includes coyotebrush as the dominant or co-dominant shrub in the canopy. Coyote brush scrub has a variable shrub canopy less than 3 meters (10 feet) in height with a variable ground layer. Within the biological survey area, coyote brush scrub occurs along riparian habitats and within three areas within the western portion of the site. Some of the larger stands are fairly dense, with a sparse cover of herbaceous species present. This vegetation community occurs within an area identified as significant habitat by the County (2004). Coyote brush scrub comprises approximately ~~10.9~~ 20.10 acres~~, or 5.8 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to coyote brush scrub will total 2.19 acres (*Table 1*). A total of ~~8.71~~ 17.91 acres of coyote brush scrub will be preserved on-site. Mitigation for impacts to coyote brush scrub may include on-site restoration within the preserved open space. Opportunities for coyote brush scrub mitigation are available within land currently characterized as California annual grassland; however, the specific mitigation locations will be selected based on soils, topography, slope, and aspect suitable for establishment of this vegetation community.

4.2.2.2 Riparian Scrub

The *Arroyo Willow Thickets Alliance* (MCV2 and NCL) includes arroyo willow (*Salix lasiolepis*) as the dominant or co-dominant shrub or tree in the canopy. Arroyo willow thickets has an open to continuous canopy less than 10 meters (33 feet) in height with a variable ground layer. Arroyo willow thickets occur along stream banks and benches, on slope seeps, and on stringers along drainages (Sawyer et al. 2009). Arroyo willow thickets occur in several patches in the southeastern, central-eastern, and northeastern portions of the biological survey area. This vegetation community occurs within an area identified as significant habitat by the County (2004). These stands are generally located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources. On-site, this community is dominated by arroyo willow and sometimes includes a low cover of coyotebrush, poison hemlock (*Conium maculatum*), Pacific poison oak, and coast live oak (*Quercus agrifolia*).

Arroyo willow thickets comprise ~~3.71~~ 3.90 acres~~, or 1.9 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to arroyo willow thickets will total 1.55 acres (*Table 1*). Temporary impacts to arroyo willow thickets will total 0.11 acres (*Table 1*). A total of ~~2.16~~ 2.24 acres of arroyo willow thickets will be preserved on-site. Mitigation for impacts to arroyo willow thickets will be determined during the permitting process; however, it is anticipated that mitigation for this vegetation community will consist of revegetation within the preserved open space in an area adjacent to the unnamed tributary that supports similar edaphic and hydrologic conditions necessary for establishment and persistence of this riparian adapted vegetation community. Since State and Federal agencies will have input in the placement and extent of wetland and riparian vegetation in this area, the design is currently conceptual, with the final design pending 404/401 permitting from the USACE/RWQCB and a streambed alteration agreement from the CDFW.

4.2.3 Woodland, Windbreaks, and Tree Clusters

4.2.3.1 Woodlands

The *Coast Live Oak Woodland Alliance* (MCV2 or NCL) includes coast live oak as the dominant or co-dominant species in the tree canopy. The *Coast Live Oak Woodland-Arroyo Willow Thicket Association* (MCV2 or NCL) includes coast live oak and arroyo willow as co-dominant species in the tree canopy. Both the coast live oak woodland alliance and coast live oak woodland-arroyo willow association have an open to continuous canopy less than 30 meters (98 feet) in height. The shrub layer is sparse to intermittent, and the herbaceous layer is sparse or grassy. Coast live oak woodland alliance and coast live oak woodland-arroyo willow association occur on alluvial terraces, canyon bottoms, streambanks, slopes, and flats (Sawyer et al. 2009).

Coast live oak woodland vegetation occurs in several linear patches in the southwestern, central-southern, and southeastern portions of the biological survey area. Similarly, coast live oak woodland-arroyo willow association vegetation occurs in several linear patches in the southwestern, central-southern, and central-eastern portions of the biological survey area. These stands are located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources. On-site, this community is dominated by coast live oak and arroyo willow. There is intermittent cover of Pacific poison oak and coyotebrush. This vegetation community occurs within an area identified as designated open space by the County (2004). Coast live oak woodland alliance vegetation comprise ~~7.98~~ 10.03 acres~~, or 4.2~~ percent, of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Coast live oak woodland-arroyo willow thickets association vegetation comprises ~~5.86~~ 15.17 acres~~, or 3.1 percent,~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~. No impacts to these vegetation communities will occur (*Table 1*).

4.2.3.2 Tree Clusters

Eucalyptus Groves (MCV2 or NCL) contains Tasmanian bluegum (*Eucalyptus globulus*) as the dominant species. Eucalyptus groves has an intermittent to continuous canopy less than 50 meters (164 feet) in height with a sparse to intermittent shrub and herbaceous layer. Eucalyptus groves were planted as trees, groves, and windbreaks and have naturalized on uplands and stream courses (Sawyer et al. 2009).

Eucalyptus groves vegetation occurs in three patches in the central, central-northern, and central-eastern portions of the biological survey area. Two of these stands are located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources. On-site, this community is dominated by blue gum (*Eucalyptus globulus*) and red ironbark (*Eucalyptus sideroxylon*). Due to the allelopathic nature of eucalyptus trees, the shrub and herbaceous layers are largely absent. Portions of this vegetation community occur within an area identified as designated open space by the County (2004). The eucalyptus grove vegetation comprises ~~1.68~~ 5.08 acres~~, or 0.89 percent~~ of the vegetation cover in Key Site 21 and sewer line easement ~~the project site~~ (*Figure 4* in the BRA). Permanent impacts to eucalyptus groves will total 0.49 acres (*Table 1*). A total of ~~1.19~~ 4.59 acres of eucalyptus groves will be preserved on-site. As this is a non-native vegetation community, mitigation for impacts to eucalyptus groves is anticipated to consist of revegetation with a native tree dominated vegetation community consistent with the OCP (County 2004) DevStd BIO-O-4.1. Opportunities for eucalyptus grove mitigation are available within land currently characterized as California annual grassland; however, mitigation locations will be selected based on soils, topography, slope, and aspect suitable for establishment of this vegetation community.

4.3 Hydrologic Features

A formal wetland delineation was performed by PCR, Inc. in 2003 and LFR completed an informal confirmation of the PCR survey results in 2005. The Rancho Maria Estates Sensitive Species and Habitat Survey report completed by LFR Levine-Fricke (LFR 2005) noted that additional "one-parameter" wetland resources under the jurisdiction of Santa Barbara County were found in 2005, though a comprehensive survey for one-parameter wetlands was not completed at that time. The County Environmental Thresholds and Guidelines Manual (County 2008) notes that all naturally occurring wetlands are considered significant resources and that consultation with the regulatory agencies is advised. A formal wetland delineation was completed within the biological survey area as well as the sewer line easement area in 2017 the results of which are provided in the Wetland Delineation and Jurisdictional Determination Report for the Hidden Canyon and Willow Creek Project Site (Dudek 2018). Impacts to jurisdictional wetlands, waters, and riparian vegetation are quantified in this report and are summarized in Section 5.2. Coordination and consultation with regulatory agencies described in Section 3.3 will determine the extent of agency jurisdiction as well as the mitigation approach and requirements for impacts to these areas.

4.4 Special-Status Species

4.4.1 Special-Status Plant Species

Previous field surveys documented one special-status plant species within the open space area: Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) (Dudek 2019a). Blochman's dudleya is a CNPS CRPR 1B.1 species that occurs in mostly coastal counties from San Diego north to San Luis Obispo. This perennial herb is found in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland in rocky, often clay or serpentinite soils from 16 to 1,476 feet above mean sea level. It blooms from April to June. Blochman's dudleya was observed on a rocky ridgeline within the southwest portion of the site, as shown in Figure 6 of the BRA (Dudek 2019a). Protection of known populations of special-status plant species during habitat restoration, enhancement, and maintenance is an important management consideration for long-term persistence. Additional floristic and focused special-status plant species surveys may be necessary to determine if additional populations of known special-status plant species or new populations of potentially occurring special-status plant species are present within the open space area. Timing of the surveys will be incorporated into the management strategy in an effort to maximize the likelihood of detecting these species.

4.4.2 Special-Status Wildlife Species

Prior focused surveys completed on the project site found two federally listed within the biological survey area (Dudek 2019a), California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*). Biological surveys conducted on the project site in 2015-2016 assessed the presence or potential presence of special-status wildlife species known to occur on or in the vicinity of the project site (Dudek 2019a). Based on the results of the prior focused surveys and the 2015-2016 biological surveys several special-status species were determined to occur or potentially occur within the project site. Therefore, several measures were included in the BRA (Dudek 2019a) to avoid and minimize impacts to these wildlife species. These mitigation measures are detailed in Section 4.3 of the BRA. Protection of habitat features supporting special-status wildlife species during habitat restoration, enhancement, and maintenance is an important management consideration for long-term persistence. At the time of preparation of the OSMP, formal consultation had not been initiated with the U.S. Fish and Wildlife Service (USFWS) and CDFW. Any future focused surveys for special-status wildlife will be directed based on the consultation process. Surveys, if required, would follow the protocols established for these species.

4.5 Native Trees

In 2016, Dudek documented coast live oak woodlands and arroyo willow thickets in several linear patches in the southwestern, central-southern, central-eastern, and southeastern portions of the open space area. These stands are located within the canyon bottoms associated with the ephemeral waterways and the potential jurisdictional water resources (Dudek 2019a).

An arborist tree survey was completed and a report was prepared by Kevin Small of PleinAire and is to be submitted to the County. A tree inventory can assist with project impact evaluations, tree protection and preservation for new construction and renovation projects, site analysis and plant selection, and tree problem diagnosis and best management practices. Dudek completed an assessment of trees determined to be protected under the OCP (County 2004) and developed a mitigation strategy to ensure compliance with County requirements. The assessment is included in the Tree Memo for the Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2019c).

5 MITIGATION STRATEGY

The proposed project has potential to impact biological resources including sensitive vegetation communities, jurisdictional wetlands, non-wetland waters of the U.S. and the State, and riparian habitat, native trees, and special-status wildlife species. This section details the biological resources documented in the open space and mitigation options available through preservation, enhancement, and/ or restoration of habitat in open space areas.

5.1 Habitat Mitigation

A total of eight sensitive vegetation communities occur within the BSA including: cattail marshes, purple needle grass grassland, perennial rye grass grassland, coyote brush scrub, California sagebrush scrub, arroyo willow thickets, coast live oak woodland-arroyo willow thickets, and coast live oak woodland. The proposed project would avoid impacts to coast live oak woodland-arroyo willow thickets and coast live oak woodland. The proposed project includes impacts to portions of six of these sensitive vegetation communities: purple needle grass grassland, perennial rye grass grassland, coyote brush scrub, California sage brush scrub, cattail marshes, and arroyo thickets. Impacts to vegetation communities are summarized in *Table 1* below. Note that impact acreage is based on the proposed grading footprint of Willow Creek and Hidden Canyon.

Table 1
Summary of Impacts Existing Vegetation Communities and Their Acreage within the Project Site

Physiognomic Category	General Habitat	Vegetation Communities	Total Permanent Impacts (Acres)	Total Temporary Impacts (Acres)
Herbaceous Alliances and Stands	Grassland	California annual grassland	72.54	0.02
		Purple Needle Grass Grassland[1]	1.50	--
		Perennial Rye Grass Fields[1]	0.73	--
	Forb Dominated	Bristly Ox-tongue	0.69	--
		Cattail Marshes[1]	0.12	--
Herbaceous Alliance and Stands Total			*75.59*	*0.02*
Shrubland Alliances and Stands (Upland)	Coastal Scrub	Coyote Brush Scrub Alliance[1]	2.19	--
		California Sagebrush Scrub Alliance[2]	0.01	--
Shrubland Alliances and Stands (Upland) Total			*2.20*	--
Shrubland Alliances and Stands (Wetland)	Riparian Scrub	Arroyo Willow Thickets[1]	1.55	0.11
Shrubland Alliances and Stands (Wetland) Total			*1.55*	*0.11*

Table 1
Summary of Impacts Existing Vegetation Communities and Their Acreage within the Project Site

Physiognomic Category	General Habitat	Vegetation Communities	Total Permanent Impacts (Acres)	Total Temporary Impacts (Acres)
Tree Alliances and Stands	Woodlands	Eucalyptus Grove[2]	0.49	--
		Coast Live Oak Woodland-Arroyo Willow Thickets[1]	--	--
		Coast Live Oak Woodland[1]	--	--
		Tree Alliances and Stands Total	*0.49*	--
Non-Vegetated Habitats		Developed	3.14	0.01
		Debris	--	--
		Fallow Agriculture	--	0.66
		Non-Vegetated Habitats Total	*3.14*	*0.67*
		Grand Total	82.97	0.80

Notes:
1 Sensitive vegetation community
2 Impact mitigated when known over-wintering habitat for the monarch butterfly

The proposed project includes impacts to 1.50 acres of purple needle grass grassland and 0.73 acre of perennial rye grass grassland. Proposed impacts to coastal scrub sensitive vegetation communities include 2.19 acres of coyote brush scrub and 0.01 acre of California sagebrush scrub. Proposed impacts to riparian scrub sensitive vegetation communities include 1.55 acres of permanent and 0.11 acres of temporary arroyo willow thickets and 0.12 acre of cattail marshes. Consistent with OCP (County 2004), DevStd BIO-O-1.2 mitigation for impacts to sensitive vegetation communities will consist of preservation of existing high quality native vegetation, restoration of native vegetation following impacts, enhancement of current native habitats, and restoration of areas currently dominated by non-native vegetation.

Mitigation will initially consist of preservation of the sensitive vegetation communities outside of the development area along with on-site enhancement/ restoration, where feasible. Preliminary habitat restoration locations are displayed on *Figure 2* and preliminary compensatory mitigation ratios based on projects with similar biological resources are provided in *Table 2* ~~however~~ However, note that final mitigation ratios and acreage for each vegetation community will be established following coordination with the regulatory agencies and the County and final permit conditions. Restoration opportunities for several of the sensitive vegetation communities are available within portions of the site currently dominated by California annual grassland and non-native woodland species. The preliminary habitat mitigation locations are intended to establish appropriate high quality native habitat, expand the existing preserved sensitive vegetation

communities as well as meet the anticipated mitigation requirements of the resource agencies and the County. Spatial connection to existing native habitat is a primary consideration in siting of the preliminary habitat restoration areas, though soils, topography, and hydrology are also considered when selecting restoration areas to ensure that appropriate environmental conditions are present to sustain the vegetation communities beyond the maintenance and monitoring period.

Table 2
Summary of Minimum and Maximum Compensatory Mitigation

Vegetation Communities	Minimum Compensatory Mitigation (ratio)	Maximum Compensatory Mitigation (Acres)
Purple Needle Grass Grassland[1]	3.00 acres (2:1)	3.00 acres (2:1)
Perennial Rye Grass Fields	1.46 acres (2:1)	1.46 acres (2:1)
Wetland and Riparian Vegetation (Arroyo Willow Thickets, Bristly Ox-tongue, Cattail Marshes)	2.74 acres (1:1)	7.41 acres (3:1)
Coastal Scrub (Coyote Brush Scrub, California Sagebrush Scrub)	2.20 acres (1:1)	2.20 acres (1:1)
Grand Total	9.40	14.70

Notes:
1 Sensitive vegetation community
2 Impact mitigated when known over-wintering habitat for the monarch butterfly

5.2 Jurisdictional ~~Water~~ Aquatic Feature Mitigation

As detailed in the Wetland Delineation and Jurisdictional Determination for the Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2019d), wetland and non-wetland water features under the jurisdiction of the USACE, RWQCB, CDFW, and County will require mitigation to ensure no net loss of these protected resources. Impacts to wetland and riparian habitat is considered a significant impact and mitigation would be required to reduce the impact to less than significant. Implementation of mitigation measure MM-3 included in the Wetland Delineation and Jurisdictional Determination, would compensate for permanent and temporary impacts to jurisdictional resources. *Table ~~2~~3* below summarizes the impacts to wetland and water resources within the project site, including the off-site sewer line easement. In addition to the mitigation proposed in *Table ~~2~~3*, per the OCP (County 2004), DevStd KS21-4, a minimum 50-foot setback from the top of the creek bank will be necessary and shall be delineated by a fence and plantings of native shrubs and trees.

Habitat restoration areas displayed on *Figure 2* include locations determined to be appropriate for establishment of wetland resources. Wetland restoration areas would be associated with the unnamed tributary to Orcutt Creek described in the Wetland Delineation and Jurisdictional Determination report (Dudek 2019d). These locations would provide an appropriate hydrological

connection to a seasonal waterway to establish wetland adapted species consistent with existing native vegetation communities present in the region.

Table 3
Summary of Impacts and Proposed Mitigation to Jurisdictional Resources Associated with the Project Site

Permanent Impact Areas Willow Creek and Hidden Canyon				
Agency Jurisdiction	*Feature Type*	*Permanent Impact (Acres)*[1]	*Mitigation Ratio*	*Total Mitigation (Acres)*[1]
USACE/ RWQCB/ CDFW/ County	Non-Wetland Waters of the U.S./ State	0.026	1:1	0.026
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	2.10	1:1	2.10
RWQCB/ CDFW/ County	Waters of the State	0.077	1:1	0.077
CDFW	Top of Bank or Edge of Riparian Habitat	1.55	2:1	3.10
County	Two Parameter Wetland	0.14	1:1	0.14
Temporary Impact Areas Sewer Line ~~line~~ Easement				
Agency Jurisdiction	*Feature Type*	*Permanent Impact (Acres)*[1]	*Mitigation Ratio*	*Total Mitigation (Acres)*[1]
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	0.08	1:1	0.08
CDFW	Top of Bank or Edge of Riparian Habitat	0.02	1:1	0.02
TOTAL Mitigation for Impacts to USACE/ RWQCB/ CDFW/ County Jurisdiction (Acres)				5.54

[1] Jurisdictional and vegetation impacts and mitigation overlaps in many cases (see Table 2 and 3). Final quantities of each impact and resulting mitigation will be worked out with resources agencies.

5.3 Special-Status Species

Based on the results of the prior focused surveys and the 2015-2016 biological surveys detailed in the BRA, several special-status species were determined to occur or to potentially occur within the project site as well as the open space area. In particular, California tiger salamander and California red-legged frog have been documented to occur within and in the vicinity of the project site and potentially utilize a portion of the upland habitat to be impacted by the project. Therefore, several recommended measures that are relevant to areas of open space were included in the BRA to reduce impacts to these wildlife species, including consultation with the USFWS and CDFW to determine the necessary permitting and conservation measures for these species. While the implementation of habitat restoration and revegetation is ultimately anticipated to

improve conditions in these areas for listed and special-status species, recommended measures included in the BRA and future federal and state Endangered Species Act permit conditions will be necessary to protect these species during the initial implementation of the mitigation program. Identification of habitat features required for special-status species known to occur within the open space area is an important management consideration for long-term persistence of these species. Protection of these habitat features, combined with restoration and enhancement, will ensure that the existing habitat value is maintained for special-status species. Restoration and enhancement opportunities will be determined in consultation with the USFWS and CDFW.

5.4 Protected Trees

County requirements for protected trees are provided below. Management of open space areas will include implementation of these requirements in regards to trees to be removed during project implementation as well as those adjacent to the project that will be protected in place. The development of the project would result in permanent impacts to 23 protected tree species within the two housing development areas and potential temporary impacts to approximately 64 protected tree species (i.e., arroyo willow (*Salix lasiolepis*)) along the proposed sewer line easement north of State Route 1). Additionally, the tree canopy and root zone of 14 protected trees would be impacted by development of the project.

In the OCP (County 2004), DevStd BIO-O-3.1 states: To the maximum extent feasible, development shall be designed to avoid damage to established native trees (e.g., oaks) by incorporating setbacks, clustering, or other appropriate methods. Areas protected from grading, paving, and other disturbances shall include the area 6 feet outside of established native tree driplines, unless this distance would interfere with reasonable development of a property. Where native trees are removed, they shall be replaced in a manner consistent with County standards. The Tree Memo for the Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2019c) includes specific mitigation for protected trees in accordance with the OCP (County 2004) including a tree protection plan and a tree replacement plan. The final OSMP will include relevant components of these plans and will also include the proposed locations of replacement tree planting locations, following coordination with the County.

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6 IMPLEMENTATION PLAN

6.1 Pre-Mitigation Restoration/Enhancement Implementation Activities

6.1.1 Special-Status Plant Species Surveys

Special-status plant species surveys shall be conducted throughout area proposed for open space management restoration and enhancement. Surveys shall be floristic and occur during the blooming months of the special-status plant species with potential to occur. The biologist shall be approved by the County prior to the initiation of prior to initiation of the surveys.

6.1.2 Container and Seed Stock

Plant and seed collection will begin in the spring and summer, prior to the fall/winter period when the plants will be installed within the mitigation restoration/enhancement areas. As noted above, timing of the restoration and revegetation plantings will depend on the resource agency consultation detailed in the BRA (Dudek 2019a). It is preferable that plant and seed collection (and the subsequent cultivation in a nursery) are performed as soon as possible prior to installation in order to: (1) provide time to increase the number of plants by growing them out and expanding them in the nursery; and (2) provide a second and third year of seed collection for subsequent seeding in years two and three. To the extent feasible, plant material for cultivation and seeds should be collected from Orcutt sources to comply with OCP (County 2004), DevSTtd BIO-O-1.2 (and/or as negotiated with the County of Santa Barbara, CDFW, RWQCB, and ACOE). For some species, and due to continuing drought conditions, there may not be sufficient plant material and seed available in the local area for use as a source without impacting the local populations. Hence, it may be necessary to order seeds and plants from commercial sources, which would acquire material from other local sources as appropriate per species. To the degree possible, plants and seed should be contract grown and/or reserved with a contract growing entity/seed supplier, with sufficient lead time to allow for availability during the anticipated installation period. Commercial container plant orders may require a longer lead time.

6.1.3 Clearing, Grubbing, and Weed Control

Work shall be coordinated with all other grading operations in the immediate vicinity. Prior to the initiation of the clearing and grubbing procedures, all vegetation and sensitive plant species, which are intended to be preserved/protected, and/or salvaged where directed, must be identified, located and clearly marked so they can be avoided and protected. All plants to be preserved/protected shall be clearly marked with flagging tape and/or fenced with orange construction fencing if grading work is to come within 25 feet of any plant.

In addition, to protect breeding native birds, a biological "nesting bird" survey shall be conducted prior to site disturbance for all work occurring during the migratory nesting bird period (i.e., Feb. 15 – September 15) of any given year.

To control weeds and exotic species, several "grow and kill" weed control treatments will need to be implemented within the site to remove actively growing weeds and to reduce the seed bank of weeds and exotics within the project site. A "grow and kill" cycle begins with the initial application of herbicides, followed by watering to stimulate growth of additional weeds. A second application of herbicides is then performed once new weeds have emerged and have attained a height of 6 inches or more, at which time an appropriate herbicide is applied. After the plants have died, the site will be irrigated again to stimulate another batch of weed/exotics germination. The treatments will continue until the seed bank has been depleted. The mitigation restoration/enhancement area will need to be watered in-between herbicide treatments using a watering truck or a temporary irrigation system, in order to stimulate the weed growth. It is very important that weeds be removed from the site prior to planting in order to minimize the weeding effort once the native plants and seed have been installed. It is anticipated that three "grow and kill" cycles will likely be necessary to initially control the weed/exotic growth. While the "grow and kill" cycles are being performed at the mitigation restoration/enhancement area, weed eradication should also occur on an ongoing basis in the buffer zone surrounding the mitigation restoration/enhancement area.

All herbicide use shall be conducted per the recommendations of a Pest Control Advisor. Applications shall be conducted by a Qualified Applicator, and shall only be conducted during environmentally appropriate times to avoid residual effects or collateral damage to unintended vegetation. Only herbicides authorized for use adjacent to wetlands shall be utilized.

6.1.4 Rodent Control

An ongoing rodent control program will be implemented to reduce the population of gophers and squirrels that could destroy newly planted material within the mitigation restoration/enhancement area. All pesticide (i.e., rodenticide) use shall be as recommended by a Pest Control Advisor (PCA) and shall meet all applicable laws, regulations, label directions and safety precautions. Potential impacts to protected species will be considered during development of the rodent control program and the consultation process with the USFWS and CDFW may include a determination of appropriate rodent control measures.

Some container plants may benefit from the installation of protective rodent control cages to help eliminate below ground damage from rodents. Specific plant species to be protected with cages are to be shown on the final revegetation construction documents. Additional above-ground

protective cages may also be required at the time of planting to protect vulnerable container planted species against herbivory from rabbits. The final revegetation construction documents shall specify the appropriate type of cages to be utilized during the planting procedures.

6.1.5 Grading and Soil Protection

All grading work shall be conducted in compliance with all other site restrictions related to sensitive species and habitats. Specifically, OCP (County 2004) DevStd BIO-O-5.6 would require that all sensitive habitats adjacent the grading limits be fenced to avoid impacts to these preserved areas. All erosion control/BMP measures shall be in place prior to and during all grading activities to assure protection of water quality and protection of existing jurisdictional resources.

The mitigation restoration/enhancement areas located within the project site footprint will be graded to final contours and the surfaces "scarified" to roughen the surfaces for planting/seeding, ideally no later than September or October of the implementation year to allow for site preparation and planting in the fall. The soil planting surfaces shall have micro-topographic variation to help foster the growth of the desired plant materials. Final grading will be coordinated with the Biologist and Native Habitat Restoration Contractor, to meet the desired conditions in each habitat restoration area and as shown on the final revegetation construction documents.

After grading, the soil shall be tested via a soil fertility and agricultural suitability analysis (i.e., soils analysis), to determine if remedial soil amending will be necessary. A soils analysis report with recommendations for native plantings shall be acquired from a soils testing laboratory. All soil amending recommendations shall be implemented prior to and during planting, as specified by the soils analysis and as approved by the Biologist.

6.1.6 Erosion Control

Prior to initiation of any clearing and grubbing activities all applicable best management practices (BMPs), as specified by the project Storm Water Pollution Prevention Plan (SWPPP), shall be installed as specified to provide erosion control protection of the site.

6.1.7 Temporary Irrigation System

An irrigation system shall be installed and operated based on site specific native landscape planting plans and associated irrigation specifications and as recommended by the Biologist. The irrigation system installed shall be temporary in nature and shall be abandon/removed once the plantings are established, per the time period specified in the Conditions of Approval. However, if the plantings are not established after that time, the Native Habitat Restoration Contractor, in consultation with the Biologist, shall determine the timing for termination of the irrigation

system. All above-ground pipe and components shall be removed permitting agencies granting final project permit compliance/approval.

6.2 Mitigation Restoration/Enhancement Implementation

6.2.1 Planting

Container plants will be installed ideally during the period between October through February to take advantage of winter rainfall. However, as noted above, timing of the restoration and revegetation plantings will depend on the resource agency consultation detailed in the BRA. Container plants would only be installed after the irrigation system has been completed and is deemed operational.

6.2.2 Seeding

Initial seeding will occur after the irrigation system has been completed and after the container plants have been installed. All disturbed soil surfaces within the upland transitional areas will be seeded to assure erosion control protection per the specific erosion control program, and per the specific recommended revegetation treatment areas and specified seed mixes. A second and third follow-up seeding would occur in the fall of the second and third year as necessary to help supplement the container plants and seeded/naturally recruited areas. Sparse areas would be seeded at that time to help achieve the intended planting densities and compositions.

6.2.3 Fencing and Signage

Temporary fencing, high visibility orange construction fencing or t-posts with rope, will be installed around the preservation and mitigation restoration/enhancement areas to discourage human access during construction. Permanent fencing and signage may be necessary to comply with OCP (County 2004), DevStd BIO-O-1.5.

6.2.4 Planting Methods

Container plants will be installed in holes dug approximately 1.5 times the depth of the container, and twice the width of the root ball. Holes will be hand-dug and/or augured in the appropriate planting locations, based upon the appropriate spacing for the intended species, and per planting locations as shown on the final revegetation construction documents. Holes will be filled with water prior to planting if they are dry. Plants will be placed in the holes and backfilled by hand. Backfill will consist of native soils with 30% fine composted soil amendment mixed into the soil. Additional soil amendments/conditioners may need to be incorporated into the backfill mix, based upon a final soils analysis results and recommended corrective

measures/additives that might be necessary to correct soil deficiencies. The level of the top of the root ball of the container plants shall be set slightly higher (i.e., approximately one inch) than the surrounding finish grade. Plants will be watered-in by hand via hose or irrigation at the time of planting, to help assure the rootball is adequately saturated.

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7 MAINTENANCE ACTIVITIES

All native container plant species and seed planted within the mitigation revegetation areas will be subject to the requirements of this OSMP. The Owner will be responsible for the long-term maintenance and monitoring on the site (typically the first five years), or until acceptance by the regulatory agencies.

Maintenance activities will be conducted concurrent with the installation of the container plant and hydroseed materials, and will continue throughout an initial 120-day plant establishment maintenance period, through the long-term maintenance and monitoring period, and concluding once success criteria have been met. Contractor maintenance activities on the site shall be conducted monthly during the 120-day plant establishment period and then bi-monthly throughout year one and quarterly thereafter. The Biologist will conduct inspections on a quarterly basis during the long-term monitoring period. Recommendations for maintenance efforts made by the Biologist shall be based upon site observations and shall include an assessment of remedial measures and recommendations to improve or repair project items including those listed below.

7.1 Irrigation

The mitigation restoration/enhancement areas will be irrigated to supplement natural rainfall and to promote plant survival during the drier parts of the year, primarily the summer months until the plants can become adequately established. Irrigation may be used in winter months to simulate a normal or above normal rain season if natural precipitation is lacking. Irrigation shall last for a maximum of three years, excepting conditions when implementation of adaptive management activities may be necessary. Irrigation volume will be gradually reduced over time to acclimate plants to a non-irrigated condition prior to complete cessation of irrigation. Irrigation from June to November shall be minimized to allow plants to experience normal drought cycles and to promote appropriate root growth. The Native Habitat Restoration Contractor shall maintain the irrigation system at the optimum level of operation based upon seasonal conditions and fluctuations.

7.2 Invasive Non-Native Plant Prevention and Management

Natural recruitment of native species and installed native plants will not be cleared in the mitigation revegetation areas during non-native plant species removal activities. The initial clearing and grading work will effectively remove non-native plant species on-site and is expected to dilute the existing non-native plant species seed bank to a level that will temporarily minimize non-native plant species.

7.2.1 Non-Native Plant Species and Weed Control

Ongoing non-native invasive/exotic plant species and weed control activities will occur throughout the long-term maintenance period. Weed control will consist of the complete removal of selected non-native vegetation (i.e., seed heads, stems, roots). Root removal may not apply to trees, depending upon the Biologist direction. All debris and slash generated from non-native plant and weed removal activities will be disposed of offsite in a legally acceptable manner.

Non-native exotic plant species and weed control measures may include direct physical or mechanical removal (e.g., cutting with weed whip machines, mowing) and herbicide application where applicable. Weeding will be performed as recommended by the Biologist to keep any weeds establishing on the mitigation site at manageable levels.

7.2.2 Target Species

The California Invasive Plant Council (Cal-IPC) inventory categorizes plants as high, moderate, or limited, reflecting the level of each species' negative ecological impact in California. These species are known to be invasive and have a high potential to spread quickly in great numbers. During 2016 surveys, Dudek identified a number of non-native plant species that are listed in the Cal-IPC inventory (*Table* ~~3~~4). These species should be targeted for removal within and adjacent to mitigation restoration/enhancement areas.

7.2.3 Hand Removal

Hand removal/physical extraction of exotics/weeds will be used around desirable native species or clusters and natives to be preserved, only where other control methods are impractical, or would cause damage to the native species. Special care will be taken not to trample adjacent native vegetation while hand removing target exotic species. The maintenance crew's ability to identify target exotics and existing sensitive native vegetation is required to limit impacts on adjacent native habitat. Maintenance crews will be assisted by the Biologist in plant species identification.

Physical removal of non-native plants, including the roots, is the best method for species whose rootball can readily be pulled-out in tact with the above-ground portions of the plant. These species will be physically removed before seed-set. If hand removal is possible only after seed-set, then seed heads will be cut-off, bagged, and removed from the site prior to the weed removal.

Table 4
Non-native Plant Species with Cal-IPC Rating

Scientific Name	Common Name	Rating
Atriplex semibaccata	Australian saltbush	moderate
Avena barbata	slender oat	moderate
Brassica nigra	black mustard	moderate
Brassica rapa	field mustard	limited
Bromus diandrus	ripgut brome	moderate
Bromus hordeaceus	soft brome	limited
Bromus madritensis ssp. *rubens*	compact brome	high
Carduus pycnocephalus	Italian plumeless thistle	moderate
Carpobrotus edulis	hottentot fig	high
Centaurea melitensis	Maltese star-thistle	moderate
Cirsium vulgare	Bull thistle	moderate
Conium maculatum	Poison hemlock	moderate
Cynodon dactylon	Bermuda grass	moderate
Ehrharta calycina	perennial veldtgrass	high
Erodium cicutarium	redstem stork's bill	limited
Eucalyptus globulus	Tasmanian bluegum	limited
Geranium dissectum	cutleaf geranium	limited
Helminthotheca echioides	bristly ox-tongue	limited
Hypochaeris glabra	smooth cat's ear	limited
Hypochaeris radicata	hairy cat's ear	moderate
Lepidium draba	whitetop	moderate
Lythrum hyssopifolia	hyssop loosestrife	limited
Medicago polymorpha	burclover	limited
Myoporum laetum	ngaio tree	moderate
Nicotiana glauca	tree tobacco	moderate
Oxalis pes-caprae	Bermuda buttercup	moderate
Plantago lanceolate	narrowleaf plantain	limited
Polypogon monspeliensis	annual rabbitsfoot grass	limited
Raphanus sativus	cultivated radish	limited
Rumex acetosella	common sheep sorrel	moderate
Rumex crispus	curly dock	limited
Schinus molle	Peruvian peppertree	limited
Schismus barbatus	common Mediterranean grass	limited
Silybum marianum	blessed milkthistle	limited

7.2.4 Mechanical Removal

Non-native exotic vegetation will be removed using mechanical methods, primarily using the "cut and treat" method, by cutting the vegetation and then applying an appropriate herbicide. Cut vegetation will be moved by hand from the area to adjacent trails or access roads where truck transport off site will take place. Repeat applications may be necessary based upon the success of the first treatment.

Exotic vegetation may also be killed with an herbicide and left in place to minimize impacts to surrounding native vegetation, and to provide roosting habitat for wildlife if appropriate and as approved by the Biologist.

Chain saws may also be used, if necessary, with cut portions removed by hand.

7.2.5 Chemical Herbicide Treatment

Herbicide control may be used for the highly invasive exotics and weeds, which have root systems that are impractical to remove by hand. The Biologist will coordinate with the Native Habitat Restoration Contractor's designated Qualified Applicator to identify specific locations where herbicides may be used. Chemical treatment may follow hand and mechanical removal activities that are conducted to increase the effectiveness of subsequent chemical treatment and absorption into the plant roots.

All herbicide treatments must be specified by a licensed Pest Control Advisor in conjunction with a specialist in salt marsh management and applied by a Qualified Applicator. Any chemical use should be conducted using methods, such as brush application, wicking, or spot spraying as directed by the licensed Pest Control Advisor that minimize effects to adjacent/desirable native species. Only water safe herbicides shall be used in wetland areas as approved by applicable regulatory agencies, including the California Department of Fish and Wildlife (CDFW). Spraying of herbicides shall be limited to when wind speeds are less than 10 miles per hour to avoid herbicide drift.

Follow-up applications may be necessary for the highly aggressive species which cannot be killed with one herbicide application. Follow-up herbicide treatments should be done at the biologically appropriate time when the recovering plants are still relatively small and before they have time to regain strength and vigor. This may require treatment during the migratory bird nesting season (February through September) and should be coordinated with the Biologist. Legally registered herbicides may pose a threat to avian species; refer to the herbicide label for information on proper timing and application rates.

7.3 Remedial Planting/Seeding

During monitoring visits, all plants shall be checked for viability by the Biologist. Dead plant material will be removed and replaced by the Owner or Native Habitat Restoration Contractor during the 120-day plant establishment maintenance period and each year as directed, with the same size material as was planted originally (except where mortality is judged to be the result of inappropriate soil or water conditions, in which case a more suitable species would be substituted as determined by the Biologist). Replacement planting will be implemented to expedite native plant establishment in the creation and enhancement areas and to meet the success standards. Remedial container plantings, cuttings and wattles, and/or supplemental seeding may be necessary following each monitoring stage, as directed by the Biologist. All dead container plant materials above the allowable tolerance levels (i.e., success standards) shall be replaced with the same species and in the same size containers as specified in the site specific native landscape planting plans. The Biologist will recommend species substitutions as appropriate. In addition, any remedial seeding deemed necessary by the Biologist to ensure conformance with the project performance standards shall be completed with native seed of the same species and percent purity/germination as specified originally on the seed mix. The Owner or the Native Habitat Restoration Contractor will be responsible for re-planting, if required.

7.4 Trash and Debris Removal

Trash and debris will be removed from the site by hand during maintenance visits. Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed, blown, and/or left within the mitigation areas. Trash and inorganic debris washed or blown onto the mitigation site will be removed regularly.

Pruning or clearing of any native vegetation will not be allowed within the mitigation restoration/enhancement areas, except as directed by the Biologist. Deadwood and leaf litter of native trees and shrubs will not be removed. Downed branches/logs and leaf litter provide valuable micro-habitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals.

7.5 Erosion Control

Trash shall be removed from the restoration/enhancement areas by hand on a regular basis, meaning at no less than one-month intervals for the 120 days and quarterly thereafter. Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed, blown, or left within the mitigation restoration/enhancement areas. The Owner or Native Habitat Restoration Contractor will be responsible for erosion control measure repairs.

7.6 Fuel Management Activities

The Santa Barbara County Fire Department recommends a 100-foot vegetation fuel management zone from structures. Guidelines for fuel modification and vegetation management have been outlined in The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (2016). The types of management will vary based on the slope, aspect, terrain, and density of vegetation. The guidelines provided in The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (2016) include:

1. ***General:*** *Vegetation management planting and thinning shall be implemented within a 100-foot vegetation management zone from residential structures adjacent to open natural areas intended for fire risk reduction. Individual residential lots shall incorporate low fuel and / or fire resistant plants into the design of the rear yard landscape.*
2. ***Residential graded pad-ornamental landscape zone:*** *The graded pad may consist of lawn and irrigated ground cover and shrubs and is considered an "irrigated zone," equivalent to a "total clear zone." Trees in this zone must be ten feet or more away from the residence.*
3. ***Landform graded slope zone (irrigated):*** *This zone includes the landform graded slopes created with grading of the residential pads. This zone shall begin a transition from the ornamental landscape to a more natural, but generally low fuel, landscape. This zone shall not include high fuel plants such as Chamise, Black sage, California sage and Coyote bush. Screen planting shall be arranged in a mosaic manner that limits the possibility of creating a fuel ladder into trees. This zone may extend beyond the graded slope into undisturbed open areas to allow for a naturalistic edge to be created that is visually harmonious with the larger natural setting. Irrigation shall be limited to the created slope and not extend into the undisturbed areas.*
4. ***Fuel Reduction Zone in natural areas:*** *Thinning of vegetation if necessary at the interface between the open space and the landform graded slope zone may include removal of dead wood and downed limbs in trees. Shrub thinning shall be done to transition smoothly into the adjoining undisturbed native plant community. Avoid contrived pruning and shaping to maintain a natural appearance.*
5. ***Tree Trimming:*** *Limbing-up of native trees (only if required to protect existing trees within the 100-foot fuel modification zone) and other incidental exotic trees such as eucalyptus or pine shall be up to six feet for Coast Live Oak and eight feet for all other species. Small oaks shall be limbed up to 1/3 of the tree's height.*

Locations of proposed structures have not been identified, thus quantities of impacts cannot be calculated. However, impacts will include vegetation removal, vegetation thinning, tree trimming, and removal of dead wood and downed tree limbs. Fuel management activities will focus on the removal and control of non-native species to the greatest extent feasible in order to meet the overall goals of the fuel management program. Native species trimming and removal, when determined to be necessary, will consist of the minimum amount necessary to meet the overall goals of the fuel management program. No ground disturbance is anticipated to occur in association with the on-going fuel management program.

Fuel management activities will take place in perpetuity to protect structures at the urban-open space interface. The standards outlined above will provide a guide for the on-going maintenance program and will ensure that native species and habitat are minimally affected by the fuel management activities.

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8 MONITORING PROGRAM

The Biologist shall monitor the mitigation restoration/enhancement areas to validate that restoration efforts are in compliance with the final OSMP. Biological monitoring will include the parameters identified below and will also incorporate and applicable requirements contained within the regulatory agency permits and conditions of approval. Monitoring will closely track the progress of the open space areas and will allow for the implementation of an adaptive response to maintenance conditions, as needed, and will provide interim results of the performance of the overall open space management program.

8.1 Success Criteria

Success criteria for the restored and enhanced vegetation communities located on-site will primarily include percent survival of installed container plants and cover of native and non-native species, which will be monitored quantitatively during the long-term monitoring period. Target container plant survivorship success criteria includes 90% survival of installed plantings in each of the on-site restoration and revegetation areas throughout the five-year monitoring period. ~~Quantitative monitoring parameters will be determined following finalization of the project design and will be based on the structure and composition of the existing habitat to be impacted as well as similar habitat in the vicinity.~~ Interim success criteria for native cover provided below in *Table 5* are based on the membership criteria in MCV2 (Sawyer et al. 2009) established for each of the vegetation communities proposed for mitigation. ~~The success criteria during the~~ Final quantitative monitoring success criteria will be determined following finalization of the project design and will be based on the structure and composition of the existing habitat to be impacted as well as similar habitat in the vicinity (i.e. reference habitat), and will also incorporate regulatory agency permit requirements and conditions of approval.

Table 5
Preliminary Success Criteria for On-Site Restoration Areas

Vegetation Community	Year	Native Cover[1]	Non-Native Cover[2]
Purple Needle Grass Grassland	1	--	90
	2	--	90
	3	5	80
	4	10	80
	5	10	80
Perennial Rye Grass Fields	1	--	10
	2	15	10
	3	25	10
	4	35	10
	5	50	10

Table 5
Preliminary Success Criteria for On-Site Restoration Areas

Vegetation Community	Year	Native Cover[1]	Non-Native Cover[2]
Wetland and Riparian Communities (Arroyo Willow Thickets and Cattail Marsh)	1	--	10
	2	20	10
	3	30	10
	4	40	10
	5	50	10
Coastal Scrub (Coyote Brush Scrub, California Sagebrush Scrub)	1	--	10
	2	15	10
	3	30	10
	4	50	10
	5	60	10

1 Percent relative cover
2 No measurable cover of perennial non-native species

Qualitative monitoring will include parameters such as health and vigor of installed and naturally recruiting plants, irrigation system condition and function, evidence of human intrusion, evidence of trash and debris accumulation, and evidence of disturbance and vandalism. If revegetation efforts fail to meet the performance standards listed in any one year, the Biologist will recommend remedial actions to be implemented (e.g., supplemental planting, seeding, transplanting) that will enhance the habitat to a level in conformance with these standards.

Success criteria established for the restored and enhanced vegetation communities will align with the goals of habitat management outlined in *Section 2.2*. Management of the restored and enhanced habitat, along with the preserved open space, will ensure that native habitats establish and persist within the open space area and provide functioning habitat for regional wildlife species.

8.2 Required Data Collection

After plant installation, the Biologist will inspect the container plantings and establish photograph documentation points in representative areas throughout the mitigation restoration/enhancement areas. Upon completion of the installation and the inspection, a report shall be completed indicating the plants were installed per the OSMP and associated site specific native landscape planting plans.

The Biologist will conduct monthly site visits during the post-installation plant establishment and warranty period, extending from the initial plant installation until 120 days after the final plant installation. These monthly site visits will include documenting quantities and locations of dead or stress planted plants, irrigation system maintenance or frequency/duration alterations, location

and species of large amounts of non-native plant species, and photographs to document these observations.

Long-term monitoring for a time period determined by Conditions of Approval will consist of qualitative and quantitative field monitoring visits conducted by a Biologist to determine survival rates and percent cover of planted plants. Evaluation will be based on quarterly qualitative visual assessments and semi-annual (twice a year) point-transect analysis. Qualitative and quantitative assessment will include analysis of native and non-native vegetative cover, native percent survival, species diversity, and irrigation. Monitoring during year three (3) should indicate a recommendation to discontinue irrigation.

During the first year of monitoring, point-intercept transects shall be established within the mitigation restoration/enhancement areas at representative locations. Transects shall be used to determine compliance and achievement of the mitigation performance criteria (percent cover). Individual container plants should be monitored for percent survival. Remedial measures will be recommended if percent cover or survival rates do not meet performance criteria. The photo points established during the plant installation site visit will be monitored over the long-term monitoring period to record the progress and plant establishment. Photograph documentation points shall be visited quarterly and photographs recorded. All qualitative and quantitative analysis will be included in annual monitoring reports, discussed below in the reporting section.

8.3 Monitoring Frequency

The Biologist shall be responsible for monitoring all activities of the Native Habitat Restoration Contractor related to mitigation restoration/enhancement and maintenance. The Biologist shall communicate and coordinate with the Native Habitat Restoration Contractor to assure the timely performance of project activities. The Biologist shall conduct biological monitoring throughout the construction period, perform an inspection for completion of the habitat mitigation restoration/enhancement installation in accordance with the OSMP and the site specific landscape plan, conduct monthly site visits during the 120-day post-installation plant establishment and warranty period, and then perform quarterly inspections for the remainder of the long-term monitoring period. Recommendations for maintenance will be based on these site observations. The schedule discussed below (*Table 6~~5~~*) is a recommended biological monitoring schedule for the Biologist that the Biologist may revise in consultation with the Owner and the Native Habitat Restoration Contractor, if site conditions warrant.

Table 6
Preliminary Monitoring Schedule[1]

Task	Timing/Frequency
Construction biological monitoring	As needed throughout project construction
Habitat mitigation restoration/enhancement installation inspection	Upon mitigation restoration/enhancement installation planting completion
Site visits for mitigation restoration/enhancement planting survival and non-native plant species	Monthly during the post-installation plant establishment and warranty period, extending from initial installation through 120 days after the final plant installation
Qualitative monitoring and inspections of mitigation revegetation areas	Quarterly inspections for the remainder of the long-term monitoring period
Quantitative monitoring and inspections of mitigation revegetation areas	Bi-annual (twice a year) inspections for the remainder of the long-term monitoring period

Notes:
1 The monitoring schedule may change as required by permitting regulatory agencies.

8.4 Reporting

After plant installation, the Biologist will inspect the container plantings and prepare a letter report indicating the work was installed per the OSMP and associated site specific native landscape planting plans. The report shall be forwarded to the Owner within two weeks of completion of installation.

Monitoring reports will be submitted annually to the Owner throughout the monitoring period of the project. It will be the Owner's responsibility to submit the annual reports to the jurisdictional agencies as required in permit conditions. The monitoring reports will describe the existing conditions of the mitigation restoration/enhancement areas, identify all issues observed as they apply to site conditions and the performance criteria, and recommend remedial measures necessary for the successful completion and compliance of the OSMP. Annual reports shall be submitted on July 31 each year after the final plant installation. The submittal date may be changed as required by permitting regulatory agencies. Each yearly report will provide a summary of the accumulated data.

Annual reports also shall include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in biological monitoring activities
- a copy of the OSMP and any subsequent letters of modification
- a copy of the resource agency permits, any special conditions, and any subsequent letters of modification

- biological monitoring photographs
- date of initiation of mitigation installation and date mitigation installation was completed
- maps identifying planting areas, monitoring areas, and non-native plant species removal areas, as appropriate
- analysis of monitoring data collected in the field
- documentation of progress toward achieving all mitigation performance criteria specified in the OSMP
- any remedial or maintenance actions taken or needed

8.5 Contingency Measures

If performance criteria are not met for any portion of the long term monitoring period or if the final performance criteria are not met, the Biologist will prepare an analysis of the cause(s) of failure within the appropriate annual report and, if determined necessary by permitting agencies, propose remedial action for agency approval. If mitigation restoration/enhancement areas do not meet performance criteria as determined by the Biologist, the Owner maintenance and monitoring obligations will continue until contingency measures are negotiated and implemented to bring the mitigation site into compliance with the performance criteria or until the permitting agencies grant final project permit compliance/approval.

8.6 Completion of Mitigation

8.6.1 Notification of Completion

If the Owner believes the final performance criteria have been met at the end of the monitoring period, the Owner shall notify the resource agencies upon submitting the annual report for the final year and request acceptance of the mitigation restoration/enhancement sites and release from the restoration responsibilities. Early release may be possible if performance criteria are met early and the resource agencies agree with the level of establishment and agree to release the project from the OSMP requirements.

8.6.2 Agency Confirmation

Following the receipt of notification of completion, the resource agencies may visit the project site to confirm completion of the mitigation restoration/enhancement efforts and issue letters of formal acceptance. Upon confirmation of successful implementation of this OSMP, regulatory agencies may issue release of the maintenance security. Any remaining bond monies would also be granted release at that time.

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9 REFERENCES

16 U.S.C. 1531 et seq. Endangered Species Act of 1973.

16 U.S.C. 703 et seq. Migratory Bird Treaty Act of 1918.

16 U.S.C. 668–668d Bald and Golden Eagles

50 CFR 10.13. "List of Migratory Birds." Environmental Protection Act, Chapter 1. U.S. Fish and Wildlife Service.

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APPENDIX A

Orcutt Community Plan Biological Policies, Actions & Development Standards

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APPENDIX A
Orcutt Community Plan
Biological Policies, Actions & Development Standards

Policy BIO-O-1: **Important natural resources in Orcutt, including sandhill chaparral, central dune scrub, wetlands, oak trees and woodland, Bishop pine forest, specimen trees, and central sage scrub shall be protected, consistent with the Open Space Plan and the standards below, unless this would prevent reasonable development of a property.**

DevStd BIO-O-1.1: Development shall be sited and designed to avoid disruption and fragmentation of significant natural resources within and adjacent to designated undeveloped natural open space areas, minimize removal of significant native vegetation and trees, preserve wildlife corridors and provide reasonable levels of habitat restoration. Where possible, significant natural resources, such as native trees, adjacent to designated, natural undeveloped open space corridors should be preserved.

DevStd BIO-O-1.2: Development within or adjacent to designated natural open space areas shall be reviewed for, and required to implement, habitat restoration where site specific impacts require restoration. If restoration on or near the site is not feasible, acquisition and preservation of additional habitat acreage should be considered, as a last resort if no other like-kind habitat mitigation options are available, payment into a mitigation bank program within the OPA that is acceptable to the County as provided for by new DevStd BIO-O-1.8. Mitigation and restoration plans should identify acreage impacted, replacement ratios, success criteria, remedial measures, and funding and responsibility for long-term maintenance and monitoring. All such restoration projects shall utilize native plants derived from local (Orcutt) seed and cutting stock, or as deemed biologically acceptable by a County qualified biologist. Wildlife relocation should be avoided. However, any wildlife relocation should be coordinated with Fish and Game and be consistent with applicable State standards. Amended by Res.01-226, 7/10/01

DevStd BIO-O-l.3: Landscaping for development on the edge of designated natural undeveloped open space areas shall include native trees and shrubs, with habitat restoration efforts focused on buffers. Planting of highly invasive weedy plants (e.g., iceplant, pampas grass, veldt grass, Monterey pine, eucalyptus, spiny clotbur, and Australian fireweed) shall be prohibited within 500 feet of natural undeveloped open space areas as designated on the Open Space map (Figure 20).

DevStd BIO-O-1.4: To allow the potential for wildfire and tree regeneration to occur, new structures should be located an adequate distance from the Bishop Pine forest boundaries, Trails should be sited and designed to protect Bishop Pine forests.

DevStd BIO-O-l.5: The edges of designated undeveloped natural open space areas shall be clearly delineated and fenced where necessary to protect resources both during construction and, when appropriate, over the life of the project. Long term fencing shall be designed to accommodate wildlife passage where appropriate.

Prog. BIO-O-1.6: When funding is available, P&D should work with the cities of Santa Maria and Guadalupe, Laguna County Sanitation District, Caltrans, and other interested agencies to develop a Regional Mitigation Banking Program for the Santa Maria Valley. The program should identify mitigation sites within (and outside) the OPA that could be purchased for the purpose of preservation and/or restoration and should include standards for mitigation objectives, maintenance, monitoring, and funding.

DevStd BIO·O-l.7: Development adjacent to undeveloped natural open space within high fire hazard areas shall be sited and designed to minimize fire protection activities (e.g., fuel breaks) that may potentially disrupt these areas. Structures shall be sited a minimum of 100 feet from the edge of designated open space areas in the rural area and along the urban/rural corridors (e.g., Orcutt Creek). 'This setback may be adjusted downward to retain open space vegetation and allow reasonable use of a property. Fire fighting equipment access shall be allowed within this setback and landscaping within this area should not impede the use of such equipment. Paved roads and trails may be allowed within the setback area.

DevStd BIO-O-1.8: Where new development eliminates important onsite habitat (e.g. coastal sage scrub, grasslands, riparian habitat and wetlands), County shall require development to restore or enhance like-kind habitat either onsite or offsite. If restoration sites are limited or unavailable, County shall require payment of adequate fees into a mitigation bank program acceptable to County to permanently protect a comparable or greater amount of created or restored habitat elsewhere within the OPA. Added by Res. 01-226, 7/10/01.

Policy BIO-O-3: **Established native trees in designated open space areas shall be protected. Established native trees in developable areas shall be incorporated into the site landscaping plan to the greatest degree, feasible except where it would interfere with reasonable development of a property. Native trees shall be considered established if they are six feet in height.**

DevStd BIO-O-3.1: To the maximum extent feasible, development shall be designed to avoid damage to established native trees (e.g., oaks) by incorporating setbacks, clustering, or other appropriate methods. Areas protected from grading, paving, and other disturbances shall include the area 6 feet outside of established native tree driplines, unless this distance would interfere with reasonable development of a property. Where native trees are removed, they shall be replaced in a manner consistent with County standards.

Policy BIO-O-4: **Non-native trees (e.g., eucalyptus groves and windrows) that provide known raptor nesting or key roosting sites shall be protected; nonnative specimen trees shall be protected to the greatest degree feasible except where it would interfere with reasonable development of a property. Non-native trees of less than 25 inches in diameter at breast height do not qualify as specimens for this Policy.**

DevStd BIO-O-4.1: Where non-native trees are removed for development the County should consider replacement with native trees.

Policy BIO-O-5: **New facilities in Orcutt, including roads, bikepaths/trails, sewer lines and retention basins, shall to the maximum extent feasible be sited and designed to avoid disruption of significant natural resources within designated natural undeveloped open space areas, minimize removal of significant native vegetation and trees and provide for reasonable levels of habitat restoration for significant habitats disrupted by construction.**

DevStd BIO-O-5.1: Road construction shall minimize filling within creeks, stream corridors and wetlands and avoid or minimize removal of riparian vegetation. To the maximum extent feasible, bridges (rather than culverts) shall be required over all major creeks and wildlife corridors. Such bridges shall be designed to facilitate wildlife passage by providing at least 6 feet of vertical clearance and locate support structures outside of creekbanks, if feasible. Crossings of tributaries and drainages should use bridges if a

bridge would avoid or substantially reduce impacts to sensitive habitat and sediment buildup. Road projects should also preserve the hydrologic connectivity between wetlands, and between wetlands and upland areas.

DevStd BIO-O-5.2: In designated open space areas, roadway segments (e.g., Union Valley Parkway and E Street) shall be designed in consultation with P&D, the Park Department, and appropriate federal and state agencies to allow wildlife passage through provision of appropriately placed bridges and/or culverts, and shall prohibit all night lighting in designated open space corridors except as necessary for public safety (e.g., intersections, trailheads or crossings). Light "spill over" should be minimized by directing lighting away from the open space area, the use of hoods, and landscape screening (with native species) along the road.

DevStd BIO-O-5.3: Multi-use trail construction should avoid removal of riparian vegetation to the maximum extent feasible. The Orcutt Creek multi-use trail shall be set back a minimum of 50 feet from the outside edge of riparian vegetation or the top-of-bank (whichever is further), unless this would make the multi-use trail link infeasible. Trail construction shall include riparian restoration between the edge of existing native vegetation and the bicycle path. Trail lighting should be directed away from the creek.

DevStd BIO-O-5.4: Trails should follow existing dirt road and trail alignments and utilize existing bridges where feasible. Where this is not possible, prior to final trail alignment proposed trail routes should be surveyed and rerouted where necessary to avoid sensitive species, subject to final approval by P&D and the Park Department. All trails shall be sited and designed to avoid or minimize impacts to sensitive resources, areas of steep slopes and/or highly erosive/sandy soils, where feasible. Developers shall fund sign installation along certain trails (as identified in the Multi Use Trail Guidelines) providing educational and interpretive information and advising dog owners to keep their dogs out of sensitive habitats.

DevStd BIO-O-5.5: Siting and construction of a new or expanded sewage treatment facility and associated ponds and/or spraying grounds and sewer trunk line extensions shall avoid important natural resources and should be based on results of sensitive species surveys. Facilities shall be constructed a minimum distance of 50 feet from the edge of riparian, marsh and wetland areas and shall avoid amphibian retreat areas. Sewer trunk lines should be

placed under or adjacent to roads, bike paths or trails, not within creeks or wetland areas.

DevStd BIO-O-5.6: Excavated fill for retention basin construction shall not be placed within important natural resource areas. Areas adjacent to or within habitats which are disturbed during construction shall be revegetated with appropriate native species. All sensitive habitat areas adjacent to proposed retention basins shall be fenced before grading begins to prevent disturbance and stockpiling in these areas.

Action BIO-O-5.7: Any County approval of plans for diversion of Orcutt Creek water should include formulation and implementation of an Orcutt Creek Watershed Management Plan that provides an adequate water supply in and below the stream channel for sustained riparian habitat associated with the stream.

KEY SITE 21 DEVELOPMENT STANDARDS

Policy KS21-1: Parcel 113-250-14 is designated Open Space and zoned REC. The remainder of Key Site 21 is designated PD and Resort Visitor Serving Commercial and is zoned PRD (maximum 150 units). Any proposed development on KS-2I shall comply with the following development standards.

DevStd KS21-1: No applications for development shall be accepted prior to approval of a Specific Plan for the entire site.

DevStd KS21-2: Any Specific Plan application shall indicate the location of the residential units and may indicate the location of up to 20 acres of Resort Visitor Serving Commercial uses, For every acre of Resort Visitor Serving use proposed, the maximum allowable number of residential units shall be decreased by four. If the full 20 acres of commercial is developed, the maximum number of residential units will be 70. Any proposed Resort Visitor Serving uses shall be integrated/ coordinated with the preexisting golf course uses.

DevStd KS21-3: If a Specific Plan is adopted which includes Resort Visitor Serving Commercial, the County shall rezone portions of the property to CV as necessary to be consistent with the adopted Specific Plan.

DevStd KS21-4: The area depicted in Figure KS21-1 shall remain in natural, undeveloped open space. No development except trails or a roadway to parcel 113-250-17 and/or the existing parking lot shall be permitted within this open space

and no structures shall be permitted within 50 feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.

DevStd KS21-5: The developer shall dedicate an easement for and construct a public staging area and hiking trail along the east side of the site boundary as depicted on Figure KS2l-1.

DevStd KS21-6: Development along Highway 1 shall include installation and maintenance of an average 50-foot wide landscaped buffer along the highway with trees which would exceed 50 feet in height at maturity planted in clusters a maximum of every 100 feet (part of this screen may be developed in an easement secured from Cal Trans providing an adequate permanent buffer is ensured). The buffer shall be landscaped with a sufficient density of trees and shrubs to screen views of all parking areas and to break-up and screen views of development from Highway 1.

DevStd KS21-7: Residential units adjacent to the existing golf course should be designed to include private outdoor areas (e.g. landscape buffering) and ensure safety from stray golf balls. Development shall be designed to facilitate pedestrian access to the golf course and accommodate continued use of the public golf course.

DevStd KS21-8: All development shall be sited to preserve the natural landforms of the site and minimize grading.

DevStd KS21-9: The Specific Plan shall, to the maximum extent feasible, provide for coordinated access points on Highway 1 between this site and Key Site 22.

DevStd KS21-10: The layout and design of the development should be compatible with golf course actions and minimize risks to occupants and visitors from golf course activity.

DevStd KS21-11: The development should minimize visual impacts to Highway 1 and the surrounding rural area through the use of low-profile design, earthtone colors and vegetated setbacks. The Specific Plan shall be reviewed for compatibility with adjoining agricultural uses,

Wetland Delineation and Jurisdictional Determination

for

The Neighborhoods of Willow Creek & Hidden Canyon

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TABLE OF CONTENTS

Section **Page No.**

1.0 INTRODUCTION 1
1.1 Project Location 1
1.2 Wetland Delineation Survey Area 1
2.0 SUMMARY OF REGULATIONS 7
2.1 U.S. Army Corps of Engineers 7
2.2 Regional Water Quality Control Board 10
2.1.1 Section 401 of the CWA 11
2.2.1 Porter-Cologne Water Quality Control Act 11
2.3 California Department of Fish and Wildlife 11
2.4 County of Santa Barbara 12
3.0 METHODS 14
3.1 Literature Review 14
3.2 Field Assessment 14
3.2.1 Hydrophytic Vegetation 15
3.2.2 Hydric Soils 15
3.2.3 Hydrology 16
3.3 Survey Limitations 16
4.0 RESULTS 20
4.1 Vegetation 21
4.2 Soils 24
4.3 Hydrology 27
5.0 JURISDICTIONAL DETERMINATION 31
6.0 RECOMMENDATIONS 50
7.0 REFERENCES CITED 54
APPENDIX A 56
APPENDIX B 58

APPENDICES

A Wetland Determination Data Forms
B Photo Exhibits

TABLE OF CONTENTS

Section **Page No.**

FIGURES

Figure 1 Vicinity and Regional Map 3
Figure 2 Watersheds 5
Figure 3 Site Topography and Soils 16
Figure 4 Wetland Delineation and Jurisdictional Determination 32
Figure 4a Hidden Canyon Wetland Delineation and Jurisdictional Determination 34
Figure 4b Willow Creek Wetland Delineation and Jurisdictional Determination 36
Figure 4c Sewer Line Wetland Delineation and Jurisdictional Determination 38
Figure 5 Wetland Delineation and Jurisdictional Determination Proposed Project Impacts 40
Figure 5a Hidden Canyon Wetland Delineation and Jurisdictional Determination Proposed Project Impacts 42
Figure 5b Willow Creek Wetland Delineation and Jurisdictional Determination Proposed Project Impacts 44
Figure 5c Sewer Line Wetland Delineation and Jurisdictional Determination Proposed Project Impacts 46

TABLES

Table 1. List of Hydrophytic Plant Species Observed at Sample Points and Their Indicator Status 20
Table 2. Soil Types and Hydric Status 23
Table 3. Summary of Impact Acreage to Jurisdictional Resources for the Neighborhoods of Willow Creek and Hidden Canyon Project Site 30

1.0 INTRODUCTION

Dudek has prepared this wetland delineation and jurisdictional determination report (report) to present the results of a formal (routine) wetland delineation (field assessment) of hydrologic features within The Neighborhoods of Willow Creek & Hidden Canyon project site (project site), in unincorporated Santa Barbara County. Features delineated were those potentially regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), by the Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and the state Porter-Cologne Act, by the California Department of Fish and Wildlife (CDFW) under Sections 1600-1607 of the California Fish and Game Code, and by the County of Santa Barbara (County) per their Environmental Thresholds and Guidelines Manual (County of Santa Barbara 2015).

The wetland delineation and jurisdictional determination was completed through a literature review and field assessment to determine if features present within the project site meet the regulatory definition of federal or state waters, wetland habitat, streambed, lake, and riparian vegetation, and/or contain fish and wildlife resources. The features discussed in this report focus on those that will be impacted by the project, as currently designed, to facilitate subsequent regulatory agency permitting and mitigation planning.

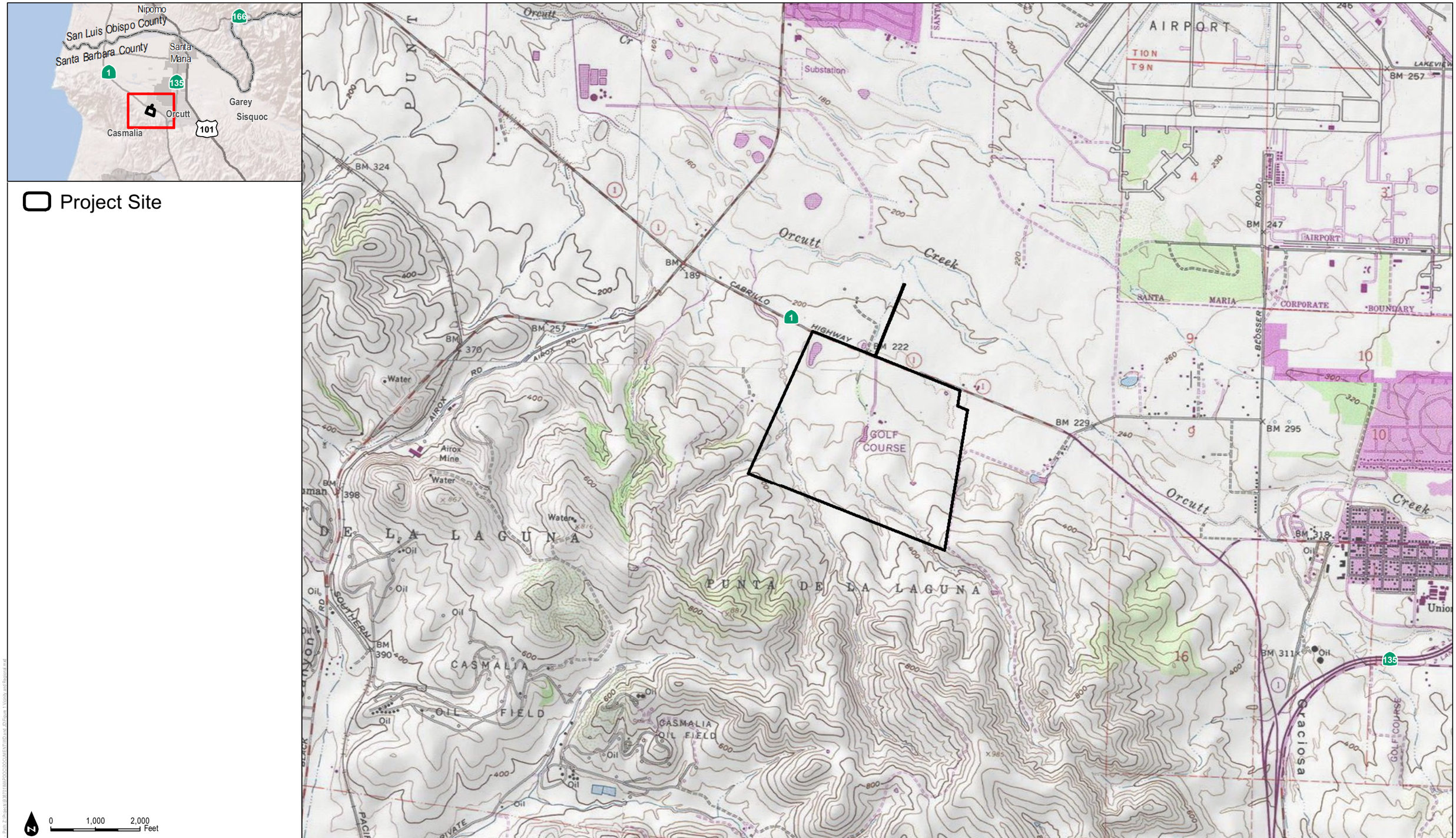
1.1 Project Location

The 189.2-acre Neighborhoods Specific Plan Project site is located on State Route 1 (SR 1), approximately two miles west of Old Town Orcutt, between the intersection of Black Road to the west and Solomon Road to the east in the northwestern portion of the Orcutt Community Plan (OCP) area (a part of a 340-acre site known as Key Site 21), in the Third Supervisorial District (APN 113-250-015, -016, and -017).The project site is bounded by privately owned land under agricultural cultivation to the east, ranchland and agricultural cultivation to the west, and ranchland to the south (*Figure 1*). The project site is located within the Orcutt Creek-Corralitos Canyon watershed (*Figure 2*). Additionally, the project site includes the sewer line easement within a portion of APN 111-240-24 north of the main portion of the project site and Highway 1 and is oriented in a southwest to northeast direction.

1.2 Wetland Delineation Survey Area

Detailed field assessments for this report were performed in winter, early spring, and spring 2017 within the potential hydrologic features identified in the Biological Resources Assessment for The Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2016) to ensure that all jurisdictional wetlands and waters potentially subject to impacts were identified and mapped. The wetland delineation survey area includes the Willow Creek and Hidden Canyon project site

development footprint. In the broader context, a total of two unnamed tributaries to Orcutt Creek traverse the property, flowing south to north, and make up the primary hydrologic features within Key Site 21. These unnamed tributaries, as well as five additional water features, are identified on the National Wetlands Inventory (NWI) (USFWS 2017) within Key Site 21.



SOURCE: ArcGIS Online Basemap, USA Topo Maps

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FIGURE 1

Vicinity and Regional Map

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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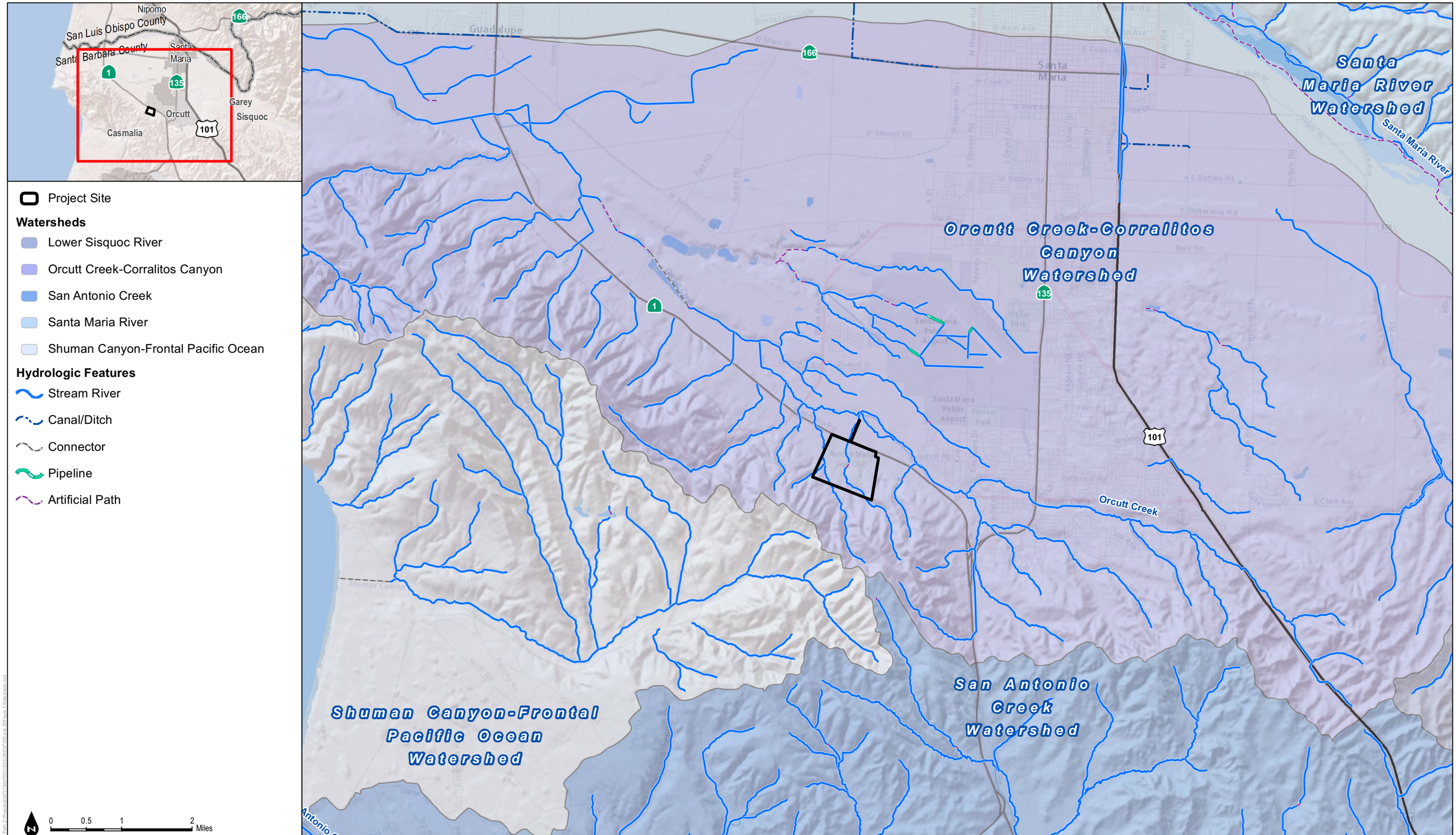

SOURCE: USGS NHD and WBD 2017

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FIGURE 2
Watersheds

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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2.0 SUMMARY OF REGULATIONS

The following agencies regulate specified activities within streams, wetlands, and riparian areas throughout California: USACE, RWQCB, and CDFW. The County also regulates impacts to wetland and riparian habitats within the County. The USACE Regulatory Program regulates the discharge of dredge or fill material under Section 404 of the CWA. The RWQCB regulates dredge and fill activities within wetlands and non-wetland waters under Section 401 of the CWA and the state Porter-Cologne Act. CDFW regulates waters of the state under Sections 1600-1607 of the Fish and Game Code. The County regulates wetland and riparian habitats as described in their Environmental Thresholds and Guidelines Manual (County of Santa Barbara 2015).

2.1 U.S. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged and/or fill material into waters of the United States. The Code of Federal Regulations (33 CFR Part 328.3(a)) defines "waters of the United States" as:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;

(6) The territorial seas; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark (OHWM), which is defined at 33 CFR 328.3(e) as:

> *...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." The discharge of dredge or fill material into waters of the United States, including wetlands, requires authorization from the USACE prior to temporary impacts.

The USACE regulates "discharge of dredged or fill material" into waters of the United States, which includes tidal waters, interstate waters, and all other waters that are part of a tributary system to interstate waters or to navigable waters, the use, degradation, or destruction of which could affect interstate or foreign commerce or which are tributaries to waters subject to the ebb and flow of the tide (33 CFR. 328.3(a)), pursuant to provisions of Section 404 of the CWA. The USACE defines jurisdictional wetlands as areas supporting a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology, in accordance with the procedures established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). However, the U.S. Supreme Court ruling in the *Solid Waste Agency of Northern Cook County vs. United States Army Corps of Engineers, No. 99-1178* (January 9, 2001) ("the SWANCC case"), held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. Because of this decision, some previously regulated depressional areas such as mudflats, sandflats, wetlands, prairie potholes, wet meadows, playa lakes, natural ponds, and vernal pools that lack a hydrologic connection to other intra- or inter-state waters of the United States are no longer regulated by the USACE. Although no formal guidance was issued by USACE interpreting the extent to which the *SWANCC* decision would limit jurisdictional determinations, in practice, USACE considers intrastate waters as waters of the United States where there is an appropriate connection to navigable water or other clear interstate commerce connection

In 2006, the Supreme Court again issued an opinion as to what extent USACE had jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to waters of the United States, as well as wetlands adjacent to those tributaries (*Rapanos v. United States 2006*). USACE and the U.S. Environmental Protection Agency (EPA) issued guidance related to the *Rapanos* decision on June 5, 2007 (USACE and EPA 2007). The guidance identifies those waters over which the agencies (USACE and EPA) will assert jurisdiction categorically and on a case-by-case basis, based on the reasoning of the *Rapanos* opinions. In summary, USACE will continue to assert jurisdiction over:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature).

  Note: Relatively permanent waters do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months).
- Non-relatively permanent waters, if determined (on a fact-specific analysis) to have a significant nexus with a TNW, including non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but that do not directly abut a relatively permanent, nonnavigable tributary. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the arid west are distinguishable from the geographic features described previously where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. These ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality (USACE and EPA 2007).

In August 2018, the ACOE and EPA 2015 Clean Water Rule (CWR) was made effective in California following the enjoinment of the prior suspension by the U.S. District Court for the District of South Carolina. The CWR defines TNW's, interstate waters, territorial seas, and impoundments of jurisdictional waters as jurisdictional by rule, which is consistent with previous standards. Also consistent with previous standards, tributaries are considered to be jurisdictional; however, the CWR now defines tributaries as "waters that are characterized by the presence of physical indicators of flow—bed and banks and ordinary high water mark—and that contribute flow directly or indirectly to a traditional navigable water, an interstate water, or the territorial seas" (80 FR 37054–37127).

Similarly, adjacent waters are newly defined under the CWR as those waters that "have a significant nexus to traditional navigable waters, interstate waters, and the territorial seas based upon their hydrologic and ecological connections to, and interactions with, those waters" (33 CFR 328 37058). In determining adjacency, the CWR identifies three circumstances under which waters would be neighboring and, therefore, waters of the United States: (1) waters located in whole or in part within 100 feet of the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment of a jurisdictional water, or a tributary, as defined in the rule, (2) waters located in whole or in part in the 100-year floodplain and that are within 1,500 feet of the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment, or a tributary, as defined in the rule, and (3) waters located in whole or in part within 1,500 feet of the high tide line of a traditional navigable water or the territorial seas (80 FR 37054–37127). The CWR states that waters may be present outside of the boundaries previously described based on a case-specific analysis that there exists a significant nexus to a downstream TNW, interstate water, or the territorial seas.

The CWR identifies five water types that are unique to specific regions that should be subject to a significant nexus analysis including prairie potholes, Carolina and Delmarva bays, pocosins, western vernal pools in California, and Texas coastal prairie wetlands. Other waters subject to a significant nexus analysis under the CWR include waters within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas and waters within 4,000 feet of the high tide line or the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, impoundments, or covered tributary, unless the water is excluded under paragraph (b) of the CWR (80 FR 37054–37127).

2.2 Regional Water Quality Control Board

The State of California has concurrent jurisdiction with the federal government over Section 401 of the CWA, Water Quality Certification (WQC) for jurisdictional waters and wetlands of the

United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the state will exert independent jurisdiction via the Porter-Cologne Act.

2.1.1 Section 401 of the CWA

Section 401 of the CWA requires that:

> *Any applicant for a federal permit for activities that involve a discharge to waters of the United States shall provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act.*

Therefore, in California, before USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 WQC or waiver from the RWQCB.

Under Section 401 of the CWA, the RWQCB regulates at the state level, all activities are regulated at the federal level by the USACE.

2.2.1 Porter-Cologne Water Quality Control Act

Pursuant to the provisions of the state Porter-Cologne Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State" (California Water Code 13260(a)). The California Water Code defines "Waters of the state" as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code 13050(e)). Under the Porter-Cologne Act, the RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into waters of the state that are not regulated by USACE due to a lack of connectivity with a navigable water body.

2.3 California Department of Fish and Wildlife

California Fish and Game Code Sections 1600–1616 mandate that "it is unlawful for any person to…substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity."

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction extends to riparian habitat and may include oak woodlands in canyon bottoms. Historic court cases have further extended CDFW

jurisdiction to include watercourses that seemingly disappear, but reemerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as under CDFW jurisdiction. The CDFW does not have jurisdiction over ocean or shoreline resources.

Water features such as vernal pools and other seasonal swales, where the defined bed and bank are absent and the feature is not contiguous with or adjacent to other jurisdictional features, are generally not asserted to fall within state jurisdiction. The state generally does not assert jurisdiction over human-made water bodies, unless they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

Under California Fish and Game Code Sections 1600–1616, the CDFW has authority to regulate work that will substantially divert or obstruct the natural flow, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. The CDFW also has authority to regulate work that will deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement (LSAA) and is applicable to all federal and nonfederal projects.

2.4 County of Santa Barbara

In addition to the regulatory agencies identified above, wetlands and riparian habitats are regulated by the County of Santa Barbara (County) per their Environmental Thresholds and Guidelines Manual (County of Santa Barbara 2015).

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3.0 METHODS

3.1 Literature Review

The following data sources and project reports were used in the wetland delineation and jurisdictional determination effort:

- Biological Assessment Report for The Neighborhoods of Willow Creek & Hidden Canyon (Dudek 2016)
- Historical aerial photographs
- National Hydrography Dataset (USGS 2017a)
- National Hydric Soils List (USDA-NRCS 2017a)
- National Wetlands Inventory Maps (USFWS 2017)
- National Wetland Plant List (Lichvar et al. 2016)
- StreamStats (USGS 2017b)
- Web Soil Survey (USDA-NRCS 2017b)

3.2 Field Assessment

Dudek senior ecologist John H. Davis IV, as well as biologists Randall McInvale and Heather Moine performed a formal (routine) wetland delineation within the project site on February 8 and 28, 2017, March 17 and 23, 2017, and May 12, 2017. All areas within the proposed impact area identified as being potentially subject to the jurisdiction of the USACE, RWQCB, CDFW, or the County were field-verified and mapped.

The wetland delineation was performed in accordance with the methods prescribed in the USACE's 1987 *Wetland Delineation Manual* (TR Y-87-1) (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008b), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a), and the and the USACE/EPA *Rapanos* guidance (USACE and EPA 2007). For non-tidal waters of the United States, the USACE generally takes jurisdiction within rivers and streams to the "ordinary high water mark" (OHWM), as defined in *Section 2.1* above, where no adjacent wetlands are present. If adjacent wetlands are present, the jurisdiction extends to the limit of wetlands. The USACE

and RWQCB jurisdictional determination consists of the field identification of jurisdictional wetlands using the three parameters described in the USACE manual: hydrophytic vegetation, hydric soils, and hydrology (Environmental Laboratory 1987). A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated jurisdiction.

Data collected during the fieldwork consisted of the wetland sampling points (wetland determination data forms), OHWM data stations, and the global positioning system (GPS) boundaries of wetland and stream channel features. Narrow stream channel features were measured using a transect tape at several locations to determine jurisdictional limits. The jurisdictional extents were collected in the field using GPS equipment and digitized in a Geographic Information System (GIS) using ArcGIS software.

3.2.1 Hydrophytic Vegetation

Each sample point was assessed for whether it met the criteria for hydrophytic vegetation. A sampling point was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, or facultative per the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016). However, seasonal changes in species composition, human land-use practices, drought, wildfires, and other natural disturbances can adversely affect the wetlands vegetation determination, based on the dominance test alone. If a station failed the dominance test but included positive indicators of hydric soils and hydrology, the vegetation parameter was reevaluated using the prevalence index (Indicator 2), which takes into account all plant species in the community, not just dominants. The standard plot sampling technique was typically utilized; however, plot size was modified to adapt to site conditions at individual sampling locations as indicated in the USACE Arid West supplement (USACE 2008b). All plant species observed during the field assessment were identified and recorded. If a plant could not be identified in the field, a sample was taken for later identification in the laboratory.

3.2.2 Hydric Soils

According to the National Technical Committee for Hydric Soils (NTCHS), hydric soils are those “that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USDA-SCS 1994). Soil pits were prepared using a “sharp shooter” shovel to determine if hydric soils were present. The presence of hydric soils was determined through consultations with the 1987 Manual (USACE 1987) as well as *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (USDA-NRCS 2017c) and the USACE (2008b). Munsell Soil

Color Charts (Munsell 2009) were used to determine soil chroma and value. Where feasible, soil pits were prepared to depths ranging from 12 to 16 inches. Excavated soils were examined for evidence of hydric conditions, including low chroma values and redoximorphic features, vertical streaking, sulfidic odor, and high organic matter content in the upper horizon. Evidence of previous ponding or flooding was assessed along with the slope, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation to determine if hydric soils were present. Soils present within the project site are shown on *Figure 3*.

3.2.3 Hydrology

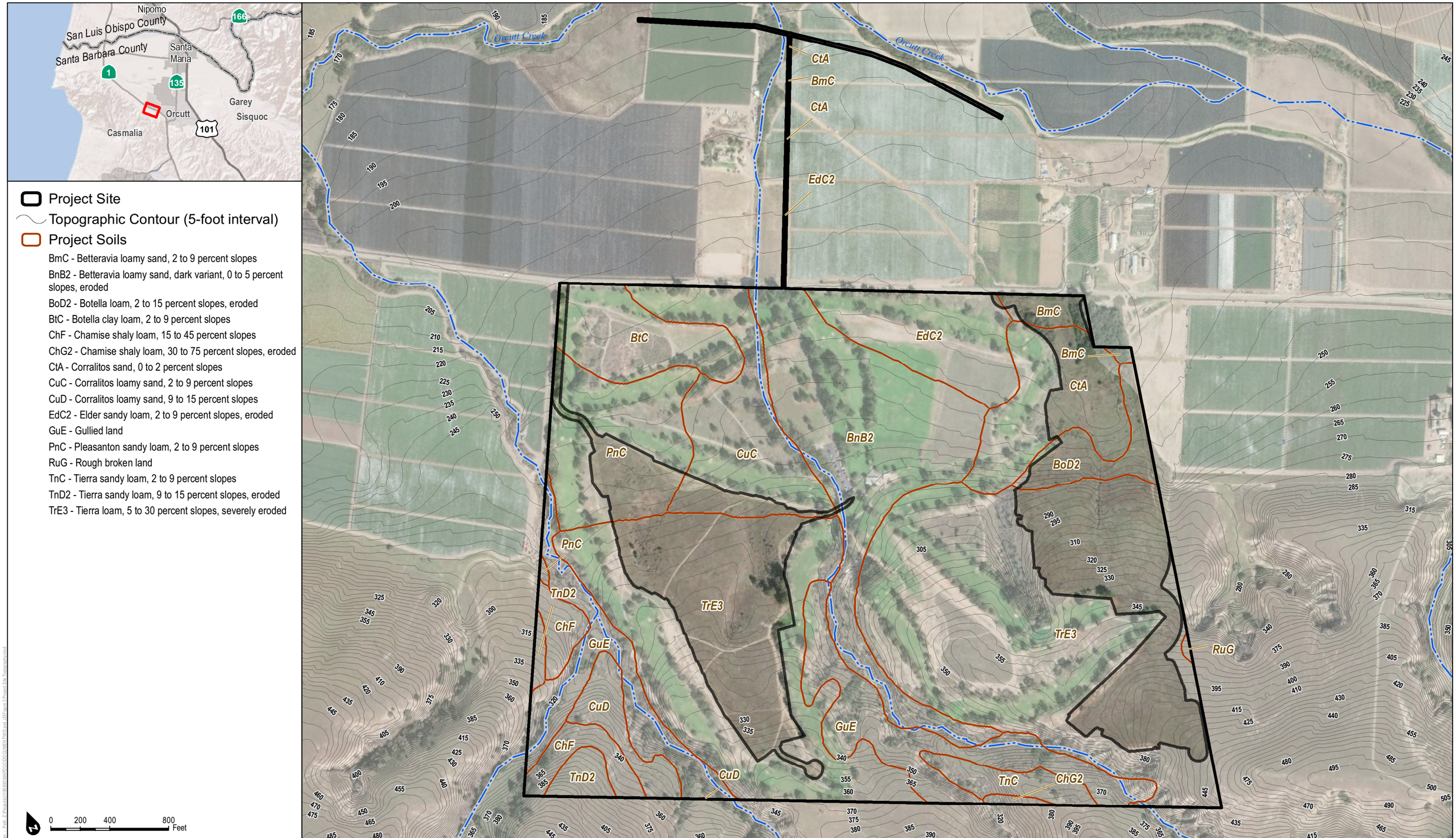
Per the guidelines prescribed in the USACE (2008b), wetland hydrology indicators are separated into four major groups: A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence that the site has been or is currently subjected to ponding, including, but not limited to, water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous or current saturation, including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of "vegetation and soil features that are indicative of current rather than historic wet conditions and include a shallow aquitard and results of the FAC-Neutral test." Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the arid west region.

Hydrology indicators specific to non-wetland waters were also assessed based primarily on the presence of an OHWM and/ or defined bed and bank. These indicators facilitate the delineation of the jurisdictional limits of non-wetland waters based on reliable and readily identifiable markers typically present in flowing stream systems, whether perennial, intermittent, or ephemeral. Additionally, connectivity of wetland and non-wetland waters with RPWs and TNWs was assessed based on current site conditions, topographic maps, NHD and NWI data, and aerial photographs to determine the jurisdictional determinations for each feature. Project site topography is shown on *Figure 3*.

3.3 Survey Limitations

The field assessment was completed during a period of above average rainfall in the region following five consecutive drought years. Drought conditions likely affected the vegetation communities growing within the hydrologic features identified in the project site. Additionally, past agricultural uses of the Hidden Canyon project site altered the vegetation communities within the potential jurisdictional features, though natural recruitment was observed throughout this area. The 2016-2017 rainfall season yielded an above average precipitation total, which

hindered the first of the wetland delineation field assessments due to very highly saturated soils that could not be sufficiently analyzed. Soil characterization was accomplished during the late March 2017 wetland delineation field assessment following a period with less frequent rainfall in early March.



AERIAL SOURCE: NAIP 2016, Topographic Contours generated from USGS 10m DEM

DUDEK

FIGURE 3

Site Topography and Soils

Wetland Delineation and Jurisdictional Delineation for The Neighborhoods of Willow Creek and Hidden Canyon

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4.0 RESULTS

The field assessment identified two main hydrologic features; a wetland feature in the northeastern portion of Hidden Canyon and an unnamed tributary to Orcutt Creek in the central portion of the project site, immediately east of Willow Creek. Several minor hydrologic features were also examined to determine regulatory jurisdiction as well as connectivity to the main hydrologic features identified above. Potential wetland features were analyzed for the presence or absence of hydrophytic vegetation, hydric soils, and hydrology. Channel features were analyzed for the presence of an OHWM and defined bed and bank. The jurisdictional determination of these features is provided below; details are provided on the Wetland Determination Data Forms and Ordinary High Water Mark Datasheets (*Appendix A*). Site photographs are provided in *Appendix B.*

The National Wetlands Inventory (NWI) (USFWS 2017) data includes designations for the unnamed tributary to Orcutt Creek and the Hidden Canyon potential wetland feature. NWI data was queried to determine the known wetland resources within the project site as a component of the overall wetland delineation, which also included historical aerial photo interpretation, topographical map interpretation, U.S. Geological Survey (USGS) StreamStats data query (USGS 2017b), and field assessments. The NWI defines the unnamed tributary to Orcutt Creek as R4SBC- (R) riverine, (4) intermittent, (SB) streambed, (C) seasonally flooded. Based on the field assessment, the unnamed tributary would be more accurately characterized an ephemeral system due to the presumed reliance on rainfall to create and sustain flows. Shortly following cessation of rainfall, this system dries out and pools, if present, would be expected to persist for only a short duration.

The NWI defines a portion of the Hidden Canyon potential wetland feature as PFOA- (P) palustrine, (FO) forested, (A) temporarily flooded. Immediately downstream of this feature, the NWI defines a channel feature as PEM1Cx- (P) palustrine, (EM) emergent, (1) persistent, (C) seasonally flooded, (x) excavated. Based on the field assessment, these characterizations are largely accurate; however, the feature area is larger in size than what is designated in the NWI data. No other NWI data is available for the remainder of the features identified within the impact area.

Within each of these potential wetland features, Dudek assessed hydrology, vegetation, and soils at 32 sampling points to determine their boundaries and jurisdictional limits and compared these limits to the project footprint. Due to the relatively high precipitation totals and the indicators observed during the field assessment, extensive sampling was determined to be necessary to accurately characterize the boundaries of the features and to determine connectivity with waters of the U.S.

4.1 Vegetation

Hydrophytic vegetation observed within the potential wetland features is listed in *Table 1* below along with their associated wetland indicator status. Wetland indicator status was determined by referencing the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016). Vegetation communities and land covers encountered within the project site are shown on *Figure 4*. Note that the field assessment was completed during the growing season as evidenced by the presence of bud burst on woody plants, primarily arroyo willow (*Salix lasiolepis*).

Table 1. List of Hydrophytic Plant Species Observed at Sample Points and Their Indicator Status

Scientific Name	Common Name	Indicator Status[1]
Ambrosia psilostachya	cuman ragweed	FACU
Bromus hordeaceus	soft brome	FACU
Anthemis cotula	stinking chamomile	FACU
Claytonia perfoliata	miner's lettuce	FAC
Conium maculatum	poison hemlock	FACW
Cynodon dactylon	Bermudagrass	FACU
Eleocharis macrostachya	pale spikerush	OBL*
Elymus triticoides	beardless wild rye	FAC
Festuca perennis	Italian ryegrass	FAC
Helminthotheca echioides	bristly oxtongue	FACU
Hordeum murinum	mouse barley	FACU
Juncus bufonius	toad rush	FACW
Lactuca serriola	prickly lettuce	FACU
Lysimachia arvensis	scarlet pimpernel	FAC
Medicago polymorpha	burclover	FACU
Melilotus indicus	annual yellow sweetclover	FACU
Polygonum aviculare	prostrate knotweed	FAC
Polypogon monspeliensis	annual rabbitsfoot grass	FACW
Rumex crispus	curly dock	FAC
Salix lasiolepis	arroyo willow	FACW
Schoenoplectus californicus	California bulrush	OBL
Sonchus asper	spiny sowthistle	FAC
Vicia sativa	garden vetch	FACU

Notes:
1 – Source: Lichvar et al. 2016
* Species not included in the 2016 Arid West Regional Wetland Plant List. Species determined to be a synonym under *E. palustris* based on personal communication with the primary author of the list.

Hidden Canyon

Vegetation within the Hidden Canyon potential wetland feature is primarily composed of herbaceous species that have established, likely naturally, following the cessation of agricultural activities. Herbaceous species present are largely made up of non-native species including bristly oxtongue (*Helminthotheca echioides* - FAC) and curly dock (*Rumex crispus* - FAC), though native species including pale spikerush (*Eleocharis macrostachya* - OBL) are present in varying concentrations and in relatively isolated areas. The shrub layer is sparse and isolated, made up entirely of coyotebrush (*Bacharris pilularis* - not listed). Trees were not found to be present within

the feature with the exception of a few individual arroyo willow (FACW) saplings. However, mature stands of arroyo willow are present around the periphery of the wetland feature, likely a remnant condition following cessation of agricultural operations, based on historical aerial photos. Although a significant portion of this feature was disturbed by prior agricultural operations, the vegetation that has established is largely comprised of hydrophytic species which meet the criteria for hydrophytic vegetation based on the dominance test or the prevalence index. A separate patch of poison hemlock (*Conium hemlock* - FACW) was identified immediately south of this feature and was included in the wetland delineation. This separate patch of poison hemlock was found to meet the criteria for hydrophytic vegetation based on the dominance test. The additional potential jurisdictional features present within Hidden Canyon were found to not support hydrophytic vegetation based on the field assessment and were delineated based on hydrologic indicators, which are discussed further below. This result is determined to be reliable given that the field assessment was completed in the wet portion of the growing season during an above average rainfall year.

Willow Creek

The potential wetland feature located within the western portion of Willow Creek is dominated largely by beardless wild rye (*Elymus triticoides* - FAC) and cutleaf geranium (*Geranium dissectum* - not listed). Additional plants identified within the potential wetland feature included miner's lettuce (*Claytonia perfoliata* - FAC), curly dock (FAC), Italian plumeless thistle (*Carduus pycnocephalus* - not listed), garden vetch (*Vicia sativa* - not listed), and fiddleneck (*Amsinckia* sp. - not listed). This feature is mapped as rye grass grassland vegetation and was assessed for the presence of hydrophytic vegetation, initially in February and again in late March. Due to the high level of soil saturation in February, several sampling points were collected in an effort to locate the edge of the feature. Vegetation assessment results found that a predominance of hydrophytic vegetation was present at a single sampling point (DS 5). The other sampling points failed both the dominance test and prevalence index. The additional potential jurisdictional features present within Willow Creek were found to be largely devoid of hydrophytic vegetation, with the exception of small patches of poison hemlock adjacent to the defined swale upslope of the rye grass grassland vegetation.

The unnamed tributary supports native habitat upstream of the project site; however, within the project site, including the proposed impact area, native vegetation is limited to one single arroyo willow tree above the bank of the channel. Non-native species including date palm (*Phoenix dactylifera*) are present in the tree layer and turf grasses are present in the herbaceous layer. Vegetation within the portion of the unnamed tributary subject to future impacts has been heavily disturbed by golf course construction and on-going operations. Overall, the portion of the unnamed tributary included in this analysis is largely devoid of vegetation.

Sewer Line Easement

One hydrologic feature occurs along the sewer line easement north of Highway 1, as shown in *Figure 7*. The unnamed tributary to Orcutt Creek meanders and a portion of it is within the project site. The hydrologic feature is dominated by arroyo willows (FACW).

4.2 Soils

Soils were examined within each of the potential wetland features identified on the project site following the excavation of soil pits at representative locations on the perimeter of the features. Soils were not examined within the unnamed tributary or ephemeral channel features due to the presence of clearly defined bed and bank indicators. Within Hidden Canyon, indicators of hydric soils were identified within the feature in the northeastern portion of the project site. Hydric soil indicators identified within the feature included hydrogen sulfide (A4), redox dark surface (F6), and sandy redox (S5). The separate patch of poison hemlock located immediately to the south was also assessed for hydric soil; however, results were negative for this feature. Within Willow Creek, hydric soil indicators were not found within the rye grass grassland feature following multiple attempts to extract complete samples. Soils in this area were saturated during the February field assessments, though by late March complete samples were able to be analyzed. Soils data collected at each feature sample point is provided on the Wetland Determination Data Forms in *Appendix A*. Soils within the project site are shown on *Figure 3*.

Based on a review of the NRCS Web Soil Survey (USDA-NRCS 2017), a total of five soil types were found to be present within the wetland delineation field assessment area (*Table 2*). A brief summary of these soils is provided herein because biological resources can often be associated with particular substrates; this is especially true of some special-status plant species and wetland resources.

Table 2. Soil Type and Hydric Status

Soil Type	Hydric Status[1]
Hidden Canyon Potential Wetland Features	
Betteravia Loamy Sand, 2 to 9 percent slopes	Not Listed[2]
Corralitos Sand, 0 to 2 percent slopes	Hydric
Willow Creek Potential Wetland Features	
Corralitos Loamy Sand, 2 to 9 percent slopes	Not Listed

Pleasanton Sandy Loam, 2 to 9 percent slopes	Not Listed
Tierra Loam, 5 to 30 percent slopes	Not Listed
Unnamed Tributary – Sewer Line Easement	
Betteravia Loamy Sand, 2 to 9 percent slopes	Not Listed[2]
Betteravia Loamy Sand, Dark Variant, 0 to 5 percent slopes, eroded	Hydric
Corralitos Sand, 0 to 2 percent slopes	Hydric
Corralitos Loamy Sand, 2 to 9 percent slopes	Not Listed
Elder Sandy Loam, 2 to 9 percent slopes	Hydric

Notes:
1 – Source: USDA-NRCS 2015
2 – Betteravia Loamy Sand, 0 to 2 percent slopes is listed as a hydric soil.

Of the seven soil types encountered during the field assessment, three are listed as hydric on the NRCS Hydric Soil List (USDA-NRCS 2015); Betteravia Loamy Sand, Dark Variant, 0 to 5 percent slopes, eroded, Corralitos sand, 0 to 2 percent slopes, and Elder Sandy Loam, 2 to 9 percent slopes. It is important to emphasize that the hydric soils lists were designed primarily to generate a list of *potentially* hydric soils from the National Soil Information System (NASIS) database. They can be useful in making preliminary wetland determinations but in no way should replace field truthing. Field indicators must be used for all on-site determinations of hydric soils. A brief description of the surface soil present within the wetland delineation field assessment area based on the USDA-NRCS (formerly the Soil Conservation Service) soil survey map, is provided below (USDA-NCRS 2017b). Complete soil descriptions can be found in the Biological Assessment Report (Dudek 2016).

Betteravia Loamy Sand

The Betteravia series consists of moderately well drained loam sand on the toeslopes of terraces, formed in sandy eolian deposits that overlie stratified terrace deposits of fine texture. In areas where this soil occurs, the mean annual precipitation is 13 to 18 inches, and the mean annual air temperature is 57°F. Vegetation consists of annual grasses and forbs with a few shrubs and scattered live oak trees. The Betteravia loamy sand, 2% to 9% slopes, series is generally characterized as occurring on nearly level to moderately sloping terrain and are on terraces; this soil type is present in the northeastern portion of the project site.

Taxonomic classes. Betteravia: Sandy, mixed, thermic Haplic Durixeralf.

Corralitos Sand

The Corralitos series consists of somewhat excessively drained sand on the footslopes of alluvial fans, formed in recent sandy alluvium derived from acid sandstone and related rocks. In areas where this soil occurs, the mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 59°F to 61°F. Vegetation consists of annual grasses, forbs, coyotebush, other shrubs, and a few live oak trees.

The Corralitos sand, 0% to 2% slopes, series is generally characterized as occurring on alluvial fans and in small valleys; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Corralitos: Mixed, thermic Typic Xeropsamments.

Corralitos Loamy Sand

The Corralitos series consists of moderately well drained loam and sand on the footslopes of alluvial fans, formed in recent sandy alluvium derived from acid sandstone and related rocks. In areas where this soil occurs, the mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 59°F to 61°F. Vegetation consists of annual grasses, forbs, coyotebush, other shrubs, and a few live oak trees. The Corralitos loamy sand, 2% to 9% slopes, series is generally characterized as occurring on alluvial fans and in small valleys; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Corralitos: Mixed, thermic Typic Xeropsamments.

Elder Sandy Loam

The Elder series consists of very deep and deep, well drained soils that formed in alluvial material derived from mixed rock sources. Elder soils are on alluvial fans and in flood plains and have slopes of 0 to 15 %. The mean annual precipitation is about 20 inches and the mean annual air temperature is about 58°F.

Taxonomic classes. Elder: Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls

Pleasanton Sandy Loam

The Pleasanton series consists of well drained soils on the toeslopes of terraces, formed in alluvium derived from quartzite, sandstone, and shale. In areas where this soil occurs, the mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 59°F. Vegetation is annual grasses and forbs with scattered oaks. Pleasanton sandy loam at 2% to 9% slopes is

generally characterized as occurring on nearly level to gently sloping alluvial fans and terraces; this soil type is present in the northwestern portion of the project site.

Taxonomic classes. Pleasanton: Fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs.

Tierra Loam

The Tierra series consists of moderately well drained soils on the toeslopes of terraces, formed in alluvium. In areas where this soil occurs, the mean annual precipitation is 14 to 20 inches, and the mean annual air temperature is 57°F. Tierra loam at 5% to 30% slopes is generally characterized as gently moderately to steeply sloping soil. Vegetation is annual grasses and forbs. This soil type is the most common throughout the project site, covering the southern two-thirds of the site.

Taxonomic classes. Tierra: Fine, smectitic, thermic Mollic Palexeralfs.

Within the wetland features included in the field assessment, indicators of hydric soils were assessed at individual sampling points. Hydric soil indicators were found within the Hidden Canyon potential wetland feature and included redox dark surface (F6) and hydrogen sulfide (A4). Due to the presence of clear OHWM and defined bed and bank indicators within the unnamed tributary, ephemeral channels, and defined swales, no soil sampling took place within these features. The Hidden Canyon potential wetland feature displayed indications of past disturbance related to prior agricultural operations. The uppermost soil layer was uncharacteristically homogenous with only minor horizonation being identified in several sampling points. Agricultural operations have not taken place for several years and regardless of the past disturbance, hydric soil indicators were identified during the field assessment.Hydric soil indicators were observed within the unnamed tributary associated with the sewer line easement including (S5) sandy redox, (A11) depleted below dark surface, and (F3) depleted matrix.

4.3 Hydrology

The project site is located within the Orcutt Creek-Corralitos Canyon watershed. Water from the project site enters Orcutt Creek via an unnamed tributary and an agricultural ditch approximately 600 meters (1,955 feet) north of the site, ultimately flowing into the Santa Maria River and Pacific Ocean at the Santa Maria River Estuary. The primary source of surface water within the project site is rainfall runoff from the slopes to the south, though other contributing sources of water are presumed to include runoff from agricultural areas to the east, runoff from golf course irrigation, and runoff from Highway 101.

Evidence of wetland hydrology was observed within the Hidden Canyon potential wetland feature. Evidence of an OHWM and defined bed and bank was identified in the unnamed tributary in the eastern portion of Willow Creek, further downstream in the same unnamed tributary associated with the sewer line easement, as well as in multiple ephemeral channels within both Hidden Canyon and Willow Creek. Wetland hydrology indicators observed during the field assessment included surface water (A1), a high water table (A2), saturation (A3), and hydrogen sulfide odor (C1). Riverine hydrology indicators observed during the field assessment included sediment deposits (B2), drift deposits (B3), and drainage patterns (B10). As noted above, hydrologic inputs into the potential wetland and other water features are presumed to consist primarily of rainfall runoff. The potential wetland features are located in topographical basins where water would naturally collect, though prior disturbances related to the golf course, agricultural cultivation, and Highway 1 likely altered drainage patterns resulting in possible prolonged ponding duration. In the case of the Hidden Canyon potential wetland, the drainage area is relatively small, totaling approximately 0.2 square mile (128 acres) (USGS 2017b). The historic drainage pattern is presumed to have been altered due to the presence of a drainage channel in the northern portion of the feature and a culvert under Highway 1, which direct flows from the this feature to the north and into an off-site agricultural ditch and ultimately into Orcutt Creek. Currently, this drainage area is sufficient to support wetland hydrology. See *Appendix A Wetland Determination Data Forms and Appendix B Photo Exhibits.*

Hydrology within Willow Creek has likely been influenced by the golf course; however, the magnitude of this influence is unknown. Potential influences could include micro-topography alterations, drainage infrastructure, and ground compaction within the golf course. Based on a review of topographic maps of the project site, the macro-topography is not likely to have been altered and the overall drainage area is expected to be unchanged from pre-golf course conditions. The USGS StreamStats service does not provide reliable data for potential wetland features within Willow Creek, therefore, the drainage area was estimated based on topography to total approximately 0.015 square mile (9.9 acres). During the early February field assessment, following periods of heavy rainfall, the Willow Creek potential wetland feature was found to support indicators of wetland hydrology including a high water table and saturation. However, due to the recent rainfall, this condition was determined to be unrepresentative of the typical conditions present during the wet season. Follow-up visits to the Willow Creek potential wetland feature in late March found that the water table and saturation levels dropped below the threshold for wetland hydrology indicators and following a thorough examination of the wetland sampling point data, the Willow Creek potential wetland was found to not support wetland hydrology. However, the presence of an ephemeral channel was confirmed during the wetland sampling field assessment. See *Appendix A Wetland Determination Data Forms and Appendix B Photo Exhibits.*

Similarly, drainage patterns were presumably altered within the unnamed tributary based on the presence of multiple culverts under the golf course as well as under Highway 1, which direct flows to the north and into Orcutt Creek. The drainage area of this feature at the point where it exits the project site totals approximately 0.8 square mile (512 acres) (USGS 2017a). The wetland delineation was limited to the areas that would be impacted by the project, which included an artificially channelized portion of the unnamed tributary. Within the area included in the assessment, the presence of riverine hydrology was identified including a clear OHWM and defined bed and bank. Surface water was observed immediately following rain events in early February; however, water flows did not persist in late February or March. See *Appendix B Photo Exhibits.*

Hydrology indicators were observed within the unnamed tributary associated with the sewer line easement including (A1) surface water, (A2) high water table, (A3) saturation, (C1) hydrogen sulfide odor, and (C3) oxidized rhizospheres along living roots. Portions of the unnamed tributary had surface water and some portions had scour evidence that indicates water flows within the unnamed tributary. Additionally, groundwater was observed rising though the soils flowing into the unnamed tributary, as shown in *Appendix B Photo Exhibits*.

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5.0 JURISDICTIONAL DETERMINATION

Regulatory agency jurisdiction varies between the potential wetland and other water features identified within the project site. As described below, USACE jurisdiction is limited to features within Hidden Canyon and the unnamed tributary in the eastern portion of Willow Creek and along the sewer line easement based on their location within or connectivity to adjacent non-navigable unnamed tributaries which flow into Orcutt Creek (a RPW) and ultimately flow into the Santa Maria River (a TNW). These non-navigable tributaries, while they do not meet the definition of a RPW, support readily identifiable OHWM and contribute to the hydrologic and biotic function of Orcutt Creek. ~~and are t~~Therefore, these tributaries meet the definition in the 2015 CWR and are considered jurisdictional by rule under the CWA. ~~USACE.~~ The Hidden Canyon potential wetland feature identified within the project site supports hydrophytic vegetation, hydric soils, and wetland hydrology, and therefore, is determined to a constitute three-parameter wetland. As this wetland meets the USACE wetland definition and is located immediately adjacent to a jurisdictional tributary, it is, therefore, considered jurisdictional by rule under the CWA. The non-wetland waters of the U.S. features identified within Hidden Canyon were determined to support a continuous surface connection to the jurisdictional wetland, contributing to the hydrologic inputs and biological integrity of the non-navigable tributary and are considered jurisdictional by rule under the CWA.~~The Hidden Canyon potential wetland feature is determined to constitute an adjacent wetland subject to USACE jurisdiction due to the connection to a RPW (Orcutt Creek).~~ In addition to USACE, the wetland and non-wetland waters of the U.S. features identified within Hidden Canyon are also under the jurisdiction of RWQCB, CDFW, and the County. Additional County jurisdictional two-parameter wetlands ~~was~~ were identified within Hidden Canyon surrounding the three-parameter wetland. These features were identified based on the presence of a combination of two wetland indicators during the field assessment. Additional riparian habitat identified within Hidden Canyon would also fall under the jurisdiction of CDFW and the County. Jurisdictional features within Hidden Canyon are displayed on *Figures 4a*. Jurisdictional features within Hidden Canyon subject to impacts due to the project are displayed on *Figure 5a.* Acreage of the jurisdictional features subject to impacts within the Willow Creek and Hidden Canyon project footprint is provided in *Table 3*.

The potential jurisdictional features identified within Willow Creek, with the exception of the unnamed tributary described above, were determined to not fall under the jurisdiction of USACE ~~due to separation from WOUS by uplands.~~ The ephemeral channel feature identified within Willow Creek is separated from the unnamed tributary to Orcutt Creek by approximately 1,300 linear feet of uplands that lack a clear surface connection indicating that flows contained within this feature would reach jurisdictional waters. However, ~~The lack of connectivity was determined since no continuous surface connection to USACE jurisdictional waters was found based on the topography of the site, which directs flows from the area to the northwest over upland areas.~~ the

feature is within 4,000 feet of a jurisdictional tributary, it could be subject to a significant nexus analysis, though due to the small overall size of the feature, the limited hydrologic inputs, and the fact that it is surrounded entirely by uplands, a significant nexus analysis is not determined to be appropriate. Although not considered jurisdictional to the USACE, ~~T~~the ephemeral channel features identified during the field assessment are determined to fall under the jurisdiction of RWQCB and CDFW due to the presence of readily identifiable bed and bank. These features are typically found in steeper portions of the overall hillslope, or downstream of an erosion feature (e.g. headcut) where water velocity is expected to be higher, resulting in the creation of a defined channel. The swale features are determined to not constitute jurisdictional waters of the U.S. or state as they did not display identifiable bed and bank; however, based on the local topography water does flow through this area. These features are generally located in gently sloping terrain, presumably subject to low velocity flows. While limited by the local topography, the water flows are expected to sheet over a relatively wide area and not within a confined channel. Jurisdictional features within Willow Creek are displayed on *Figure 4b*. Jurisdictional features Willow Creek subject to impacts due to the project are displayed on *Figure 5b.* Acreage of the jurisdictional features subject to impacts within the Willow Creek and Hidden Canyon project footprint is provided in *Table 3.*

Within the sewer line easement, the unnamed tributary supports hydrophytic vegetation, hydric soils, and wetland hydrology indicators within the stream channel and these areas are determined to constitute wetlands subject to USACE, RWQCB, CDFW, and County jurisdiction due to the surface connection to a RPW (Orcutt Creek). Riparian vegetation is also present throughout the unnamed tributary extending just slightly beyond the extent of the USACE and RWQCB jurisdiction, which would be subject to CDFW and County jurisdiction. Jurisdictional features within the sewer line easement are displayed on *Figure 4c*. Jurisdictional features within the sewer line easement subject to impacts due to the project are displayed on *Figure 5c*

Table 3. Summary of Impact Acreage to Jurisdictional Resources for the Neighborhoods of Willow Creek and Hidden Canyon

Agency Jurisdiction	Feature Type	Permanent Impact (Acres/ Square Feet)	Temporary Impact (Acres/ Square Feet)
Hidden Canyon			
USACE/ RWQCB/ CDFW/ County	Non-Wetland Waters of the U.S./ State	0.02/ 871	–
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S. (3 parameter)	2.10/ 91,389	–
RWQCB/ CDFW/ County	Waters of the State	0.06/ 2,614	–
CDFW	Top of Bank or Edge of Riparian Habitat (furthest extent)	1.55/ 67,518	–
County	Two Parameter Wetland	0.14/ 5,968	–
Willow Creek			
USACE/ RWQCB/ CDFW/ County	Non-Wetland Waters of the U.S./ State	0.006/ 261	–
RWQCB/ CDFW/ County	Waters of the State	0.017/ 741	–
Sewer Line Easement			
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S. (3 parameter)	–	0.08/ 3,485
CDFW	Top of Bank or Edge of Riparian Habitat (furthest extent)	–	0.02/ 871
Total Impact Acreage			
Impacts to USACE/ RWQCB/ CDFW/ County Non-Wetland Waters of the U.S.		**0.026/ 1,133**	–
Impacts to USACE/ RWQCB/ CDFW/ County Wetland Waters of the U.S		**2.10/ 91,389**	**0.08/ 3,485**
Impacts to RWQCB/ CDFW/ County Waters of the State		**0.077/ 3,354**	–
Impacts to CDFW Top of Bank or Edge of Riparian Habitat		**1.55/ 67,518**	**0.02/ 871**
Impacts to County Two-Parameter Wetlands		**0.14/ 5,968**	–

Project Site
Wetland Delineation Survey Area
Data Station

Wetland and Jurisdiction

U.S. Army Corps of Engineers
- Wetland (Three-parameter)
- Other Waters (Ordinary High Water Mark)
- Other Waters (Ephemeral Channel)

Regional Water Quality Control Board
- Wetland (Three-parameter)
- Other Waters (Ordinary High Water Mark)
- Waters of the State (Ephemeral Channel)

California Department of Fish and Wildlife
- Riparian Habitat
- Ephemeral Channel (Top of Bank)
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

County of Santa Barbara
- Wetland (Two-parameter)
- Riparian Habitat
- Ephemeral Channel (Top of Bank)
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

Non-Jurisdictional Features
- Defined Swale
- Undefined Swale
- Flow Path
- Erosion Channel

Vegetation Communities

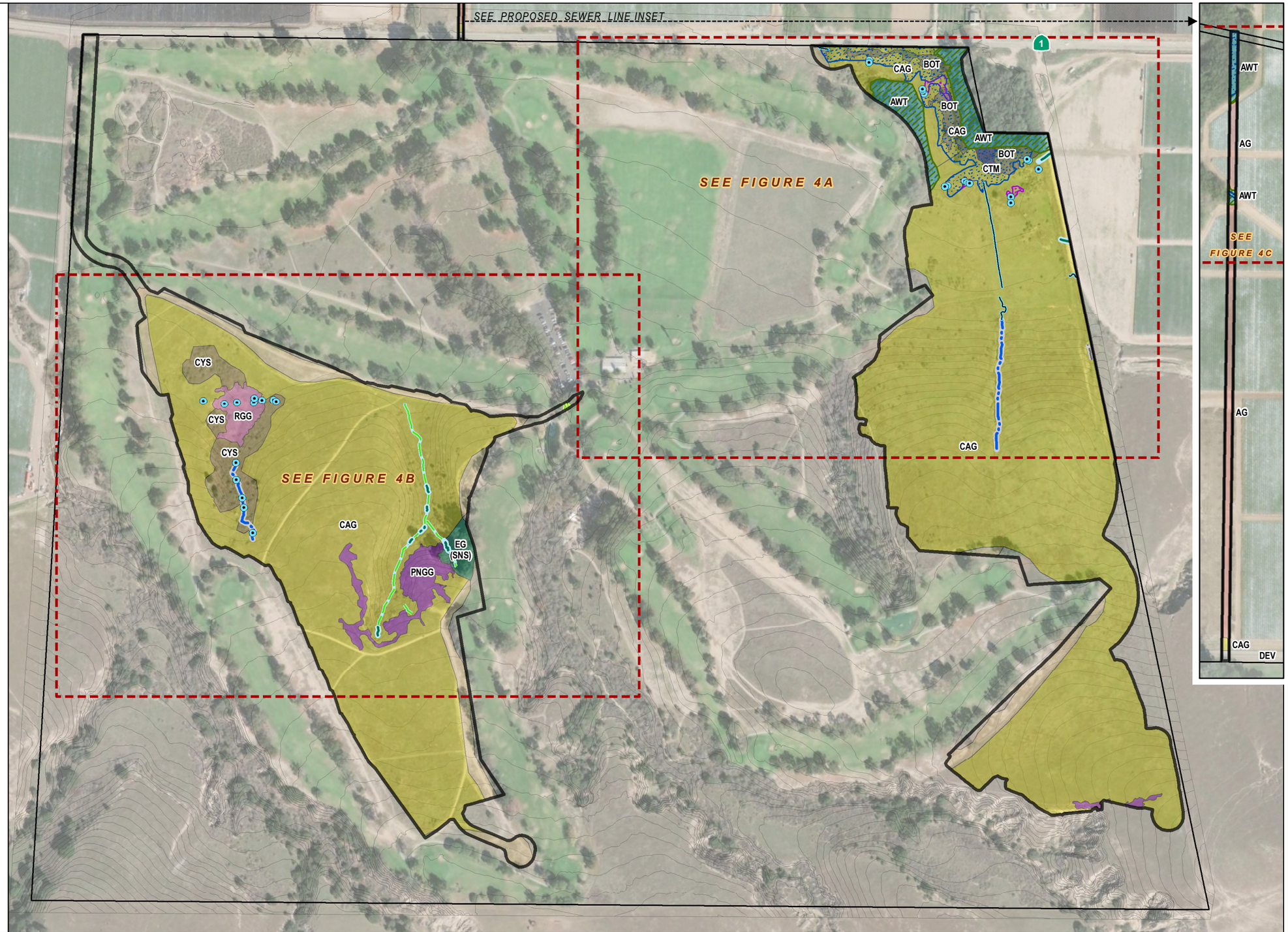
Tree Communities
- EG (SNS) - Eucalyptus grove

Shrub Communities
- AWT - Arroyo willow thickets
- CSS - California sagebrush scrub
- CYS - Coyote brush scrub

Herbaceous Communities
- CAG - CA annual grassland
- CAG (m) - CA annual grassland (mowed)
- BOT - Bristly oxtongue
- CTM - Cattail marshes

Native Grasslands
- PNGG - Purple needle grass grassland
- RGG - Perennial rye grass grassland

Other Land Cover Types
- AG - Fallow Strawberry Field
- DEV - Urban/Developed



AERIAL SOURCE: ESRI World Imagery, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 4

Wetland Delineation and Jurisdictional Determination

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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Project Site
Wetland Delineation Survey Area
Data Station

Wetland and Jurisdiction

U.S. Army Corps of Engineers
- Wetland (Three-parameter)
- Other Waters (Ephemeral Channel)

Regional Water Quality Control Board
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

California Department of Fish and Wildlife
- Riparian Habitat
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

County of Santa Barbara
- Wetland (Two-parameter)
- Riparian Habitat
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

Non-Jurisdictional Features
- Defined Swale
- Flow Path
- Erosion Channel

Vegetation Communities

Tree Communities
- CLOW-AWT - Coast live oak woodland-arroyo willow thickets

Shrub Communities
- AWT - Arroyo willow thickets

Herbaceous Communities
- CAG - CA annual grassland
- CAG (m) - CA annual grassland (mowed)
- BOT - Bristly oxtongue
- CTM - Cattail marshes

Other Land Cover Types
- DEV - Urban/Developed

N
0 100 200 400 Feet

DUDEK

AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

FIGURE 4a - Hidden Canyon

Wetland Delineation and Jurisdictional Determination

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 4b - Willow Creek

Wetland Delineation and Jurisdictional Determination

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 4c - Sewer Line

Wetland Delineation and Jurisdictional Determination

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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Project Site

Proposed Project Impacts

- Permanent
- Temporary
- Wetland Delineation Survey Area
- Data Station

Wetland and Jurisdiction

U.S. Army Corps of Engineers

- Wetland (Three-parameter)
- Other Waters (Ordinary High Water Mark)
- Other Waters (Ephemeral Channel)

Regional Water Quality Control Board

- Wetland (Three-parameter)
- Other Waters (Ordinary High Water Mark)
- Waters of the State (Ephemeral Channel)

California Department of Fish and Wildlife

- Riparian Habitat
- Ephemeral Channel (Top of Bank)
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

County of Santa Barbara

- Wetland (Two-parameter)
- Riparian Habitat
- Ephemeral Channel (Top of Bank)
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

Non-Jurisdictional Features

- Defined Swale
- Undefined Swale
- Flow Path
- Erosion Channel

Vegetation Communities

Tree Communities

- EG (SNS) - Eucalyptus grove

Shrub Communities

- AWT - Arroyo willow thickets
- CSS - California sagebrush scrub
- CYS - Coyote brush scrub

Herbaceous Communities

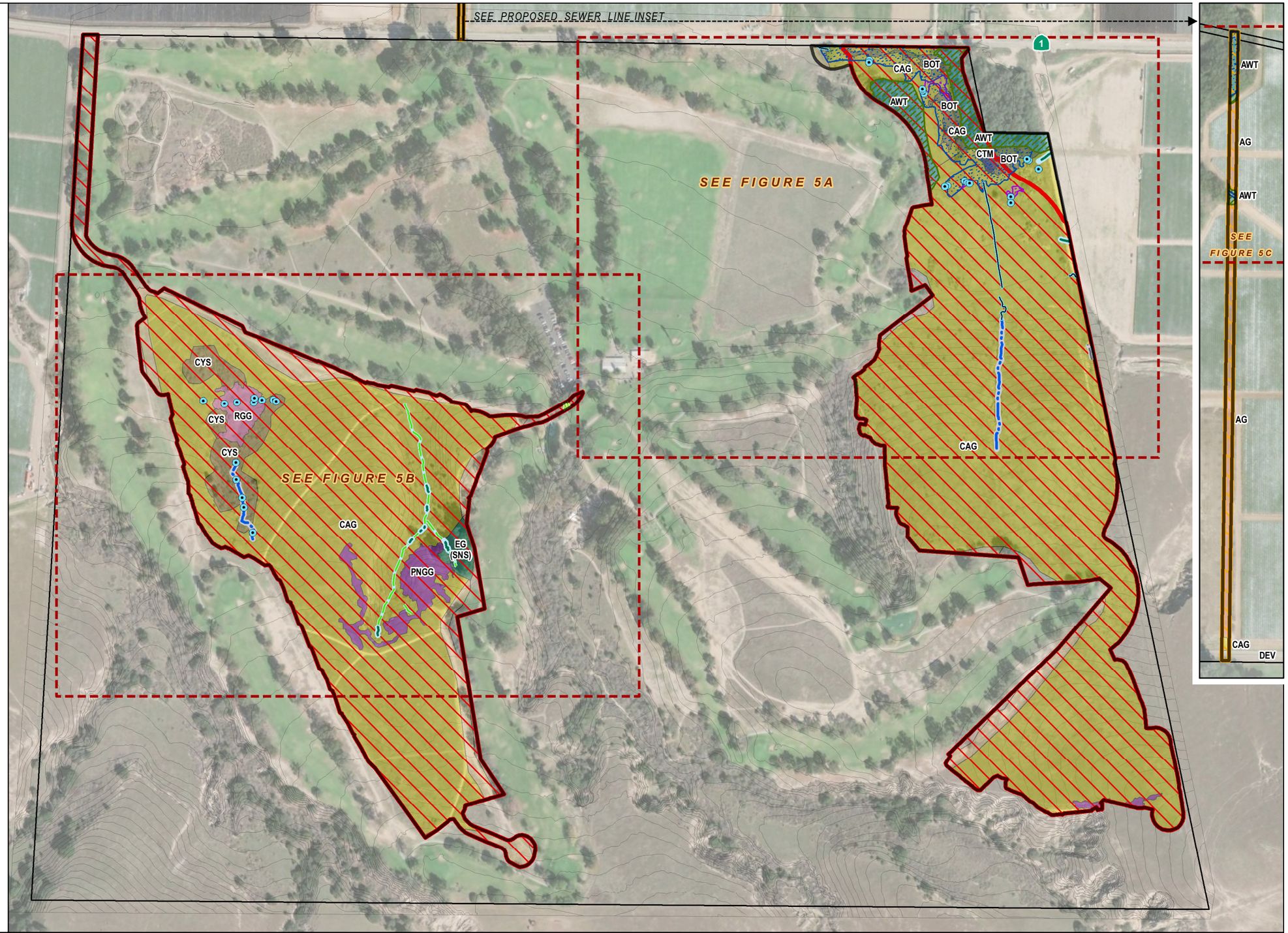
- CAG - CA annual grassland
- CAG (m) - CA annual grassland (mowed)
- BOT - Bristly oxtongue
- CTM - Cattail marshes

Native Grasslands

- PNGG - Purple needle grass grassland
- RGG - Perennial rye grass grassland

Other Land Cover Types

- AG - Fallow Strawberry Field
- DEV - Urban/Developed



0 200 400 800 Feet

AERIAL SOURCE: ESRI World Imagery, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 5

Wetland Delineation and Jurisdictional Determination Proposed Project Impacts

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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Project Site

Proposed Project Impacts

- Permanent
- Wetland Delineation Survey Area
- Data Station

Wetland and Jurisdiction

U.S. Army Corps of Engineers

- Wetland (Three-parameter)
- Other Waters (Ephemeral Channel)

Regional Water Quality Control Board

- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

California Department of Fish and Wildlife

- Riparian Habitat
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

County of Santa Barbara

- Wetland (Two-parameter)
- Riparian Habitat
- Wetland (Three-parameter)
- Waters of the State (Ephemeral Channel)

Non-Jurisdictional Features

- Defined Swale
- Flow Path
- Erosion Channel

Vegetation Communities

Tree Communities

- CLOW-AWT - Coast live oak woodland-arroyo willow thickets

Shrub Communities

- AWT - Arroyo willow thickets

Herbaceous Communities

- CAG - CA annual grassland
- CAG (m) - CA annual grassland (mowed)
- BOT - Bristly oxtongue
- CTM - Cattail marshes

Other Land Cover Types

- DEV - Urban/Developed

0 100 200 400 Feet

DUDEK

AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

FIGURE 5a - Hidden Canyon

Wetland Delineation and Jurisdictional Determination Proposed Project Impacts

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 5b - Willow Creek

Wetland Delineation and Jurisdictional Determination Proposed Project Impacts

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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AERIAL SOURCE: NAIP 2016, Project Design: Bethel Engineering 2017; Biological Resources: Dudek 2016-17

DUDEK

FIGURE 5c - Sewer Line

Wetland Delineation and Jurisdictional Determination Proposed Project Impacts

Wetland Delineation and Jurisdictional Determination for The Neighborhoods of Willow Creek and Hidden Canyon

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6.0 RECOMMENDATIONS

Based on an evaluation of the wetland delineation and jurisdictional determination field data, project plans and mapping, and current site conditions, it is determined that the project will temporarily and permanently impact USACE, RWQCB, CDFW and County jurisdictional resources; therefore, MM-1 is required to verify and finalize the Draft Wetland Delineation and Jurisdictional Determination in preparation for permit application submittals (see MM-2):

MM-1. **Agency Coordination**. The Draft Wetland Delineation and Jurisdictional Determination report shall be submitted to the USACE with a request for field verification. Once the report is verified by USACE, it shall be finalized with a Preliminary Jurisdictional Determination. The RWQCB and CDFW should also be included in the field verification for their concurrence of the delineation. The verified report and Preliminary Jurisdictional Determination shall be submitted to the County of Santa Barbara prior to issuance of a grading permit for the project.

Pending verification of the report and Preliminary Jurisdictional Determination, the following permits will be required prior to initiation of the project: a CDFW Streambed Alteration Agreement (SAA) in accordance with section 1600-1607 of the Fish and Game Code; a CWA Section 404 Dredge and Fill Permit (USACE); and, a CWA Section 401 Water Quality Certification (RWQCB).

MM-2. **Permit Requirement.** Pending verification of the Final Wetland Delineation and Preliminary Jurisdictional Determination, if required, the Applicant shall submit copies of the finalized and signed Streambed Alteration Agreement, Clean Water Act (CWA) Section 401 Water Quality Certification, and CWA Section 404 Dredge and Fill Permit or Nationwide Permit, as applicable, to the County of Santa Barbara prior to any project activities within jurisdictional features.

Mitigation is required to compensate for permanent impacts to jurisdictional waters and streambed, therefore, MM-3 shall be required and submitted with the appropriate permit applications.

MM-3 **Implementation of the proposed project will result in permanent impacts to 2.20-acres of wetland and non-wetland waters of the U.S. and state, 1.55-acres of riparian vegetation, and 0.14-acre of County regulated two-parameter wetland. In addition, implementation of the proposed project will result in temporary impacts to 0.08-acre of wetland waters of the U.S. and state, and an additional 0.02-acre of riparian vegetation.** Mitigation for impacts to USACE, RWQCB, CDFW, and County jurisdictional waters and streambed will be accomplished either

on-site, off-site, or via an off-site in-lieu fee program within the Santa Maria River watershed, potentially through the Santa Barbara Land Trust. Appropriate mitigation ratios will be applied to the impacts to result in no net loss of jurisdictional streambed as a result of the proposed project. Due to the wetland and non-wetland water features being comprised largely of non-native species, a 1:1 mitigation ratio is proposed to compensate for permanent impacts to USACE, RWQCB, CDFW, and County jurisdictional wetlands. Riparian vegetation is comprised primarily of native species and therefore, a 2:1 mitigation ratio is proposed to compensate for permanent impacts to CDFW and County jurisdictional riparian habitat. A 1:1 mitigation ratio is proposed to compensate for temporary impacts to USACE, RWQCB, CDFW, and County jurisdictional waters/ riparian vegetation. If mitigation will be provided on-site, the mitigation will be installed during and immediately following construction of the project. Monitoring of the mitigation will take place during installation as well as for 5 years following project completion.

Table 4. Summary of Proposed Mitigation for Impacts to Jurisdictional Resources Associated with the Neighborhoods of Willow Creek and Hidden Canyon Project Site

Permanent Impact Areas Willow Creek and Hidden Canyon				
Agency Jurisdiction	**Feature Type**	**Permanent Impact (Acres)**	**Mitigation Ratio**	**Total Mitigation (Acres)**
USACE/ RWQCB/ CDFW/ County	Non-Wetland Waters of the U.S./ State	0.026	1:1	0.026
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	2.10	1:1	2.10
RWQCB/ CDFW/ County	Waters of the State	0.077	1:1	0.077
CDFW	Top of Bank or Edge of Riparian Habitat	1.55	2:1	3.10
County	Two Parameter Wetland	0.14	1:1	0.14
Temporary Impact Areas Sewerline Easement				
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	0.08	1:1	0.08
CDFW	Top of Bank or Edge of Riparian Habitat	0.02	1:1	0.02
TOTAL Mitigation for Impacts to USACE/ RWQCB/ CDFW/ County Jurisdiction (Acres)				**5.54**

If changes to the current design become necessary, please consider avoidance or further minimization of impacts to jurisdictional waters and streambed identified in this Draft Wetland Delineation and Jurisdictional Determination.

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7.0 REFERENCES CITED

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APPENDIX A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8 and 3/17/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS1

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Base of hillslope Local relief (concave, convex, none): flat to slight concave Slope (%): ~1

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located along the eastern edge of a depression at the base of hillside to the south. The depression is rather flat with slight slopes leading to slightly higher topography to the east and west and even lower areas to the north. Rancho Maria Golf Course surrounds the feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	25	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1. *Claytonia perfoliata*	30	Yes	FAC
2. *Bromus sp.*	35	Yes	Not Listed
3. *Avena fatua*	30	Yes	Not Listed
4. *Brassica nigra*	5	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ___ % % Cover of Biotic Crust ___ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	125 (A)		565 (B)

Prevalence Index = B/A = 4.52

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks: Too early in development to determine Bromus and Avena species.

SOIL

Sampling Point: DS1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	10YR 3/2	100					sandy loam	
3-20	7.5YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Uniform soil layers. Abundant soil roots. The soil pit was re-assessed during the 3/17/17 field assessment. Similar to the 2/8/17 field assessment, no indicators of hydric soil were identified.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches): 14"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have resulted in saturated conditions throughout this feature. Water table is high, though does not meet the criteria for indicator A2. Water quickly seeped into the soil pit. The first measurement of the water table was 14" beneath ground surface, which was taken approximately 5 minutes of soil pit excavation. Shortly thereafter, the water table was at the surface. Saturation was most evident below 7"; however, the soil pit was quickly filled with water as indicated above.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS2

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): NW facing slope Slope (%): ~3

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located along the eastern edge of a depression at the base of hillside to the south, just upslope of DS1.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	15	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1. *Claytonia perfoliata*	5	No	FAC
2. *Bromus sp.*	40	Yes	Not Listed
3. *Avena sp*	40	Yes	Not Listed
4. *Brassica nigra*	2	No	Not Listed
5. *Erodium botrys*	5	No	FACU
6. *Geranium dissectum*	5	No	Not Listed
7. *Vicia sativa*	2	No	FACU
8. *Daucus pusillus*	1	No	Not Listed
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	7	x 4 =	28
UPL species	103	x 5 =	515
Column Totals:	115 (A)		558 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks: Too early in development to determine Bromus and Avena species.

SOIL

Sampling Point: DS2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	10YR 3/2	100					sandy loam	
9-15	10YR 4/2	100					sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: The sampling point was re-assessed during the 3/17/17 field assessment with similar results. Many roots were identified in the profile, especially in the upper 3". No hydric soil indicators were identified.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have produced saturated conditions within this feature at the time of sampling. The water table is below the level required to meet the A2 indicator; however, saturation is evident beginning at 7" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS3

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located within a depression feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus triticoides*	15	No	FAC
2. *Bromus sp.*	20	Yes	Not Listed
3. *Avena sp*	25	Yes	Not Listed
4. *Brassica nigra*	5	No	Not Listed
5. *Geranium dissectum*	18	No	FACU
6. *Rumex crispus*	2	No	Not Listed
7. *Vicia sativa*	2	No	FACU
8. *Carduus pycnocephalus*	13	No	Not Listed
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species	20	x 4 =	80
UPL species	65	x 5 =	325
Column Totals:	100 (A)		450 (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks: Too early in development to determine Bromus and Avena species.

SOIL

Sampling Point: DS3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	7.5YR 3/2	100					sandy loam	abundant roots
2-5	10YR 3/2	98	5YR 5/8	2	C	M	sandy loam	Redox features also in PL
5-15	7.5YR 3/1	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil sample was highly saturated upon extraction and was laid out to partially dry prior to evaluation. Soil chroma of 2 and redox concentration layer totaling 3 inches does not qualify for S5. Redox concentrations totaling 2 percent in a soil with chroma of 3 and value of 2 does not qualify for F6. Underlying soil did not contain redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): surface

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have produced saturated conditions within this feature at the time of sampling. The water table is highh, at approximaltey 3" below ground surface. The ground is saturated immediately below the surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS4

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located within a depression feature west of DS3. Sampling point collected in an attempt to locate the edge of the feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus triticoides*	50	Yes	FAC
2. *Claytonia perfoliata*	5	No	FAC
3. *Carduus pycnocephalus*	35	Yes	Not Listed
4. *Brassica nigra*	5	No	Not Listed
5. *Geranium dissectum*	2	No	Not Listed
6. *Galium aparine*	3	No	FACU
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	55	x 3 =	165
FACU species	3	x 4 =	12
UPL species	42	x 5 =	210
Column Totals:	100 (A)		387 (B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks:

SOIL

Sampling Point: DS4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pit too saturated during both the 2/8/17 and 3/17/17 field assessments to extract a usable sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): surface
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have produced saturated conditions within this feature at the time of sampling. The water table is at ground surface as of the 2/8/17 field assessment.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS5

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ●	No ○	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located within a depression feature west of DS4. Sampling point collected in an attempt to locate the edge of the feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus triticoides*	90	Yes	FAC
2. *Carduus pycnocephalus*	8	No	Not Listed
3. *Amsinckia sp.*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	90	x 3 =	270
FACU species	2	x 4 =	8
UPL species	8	x 5 =	40
Column Totals:	100 (A)		318 (B)

Prevalence Index = B/A = 3.18

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: Too early in development to determine Amsinckia species. Amsinckia species known from the project site and their indicator status are as follows: A spectabilis is FACU and A. menziesii is not listed. Conservatively, indicator status for A. spectabilis was used in the evaluation.

SOIL

Sampling Point: DS5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-7	10YR 2/2	100					clay loam	
7-13	10YR 2/1	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil sample was highly saturated and evaluation was not possible on 2/8/17. The sampling point was re-assessed during the 3/17/17 field assessment when conditions were suitable for evaluation of the sample. No hydric soil indicators were identified.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have produced saturated conditions within this feature at the time of sampling. The water table is high, at approximately 8" below ground surface during the 2/8/17 field assessment.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS6

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Slight east facing slope Local relief (concave, convex, none): gentle slope Slope (%): ~2

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point was heavily saturated during the early February field assessment due to recent heavy rains. The sampling point is located upslope of a depression feature, west of DS5. .

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus sp.*	50	Yes	Not Listed
2. *Avena sp.*	45	Yes	Not Listed
3. *Amsinckia sp.*	2	No	FACU
4. *Medicago polymorpha*	1	No	FACU
5. *Erodium botrys*	1	No	FACU
6. *Erodium cicutarium*	1	No	Not Listed
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	4	x 4 =	16
UPL species	96	x 5 =	480
Column Totals:	100 (A)		496 (B)

Prevalence Index = B/A = 4.96

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks: Too early in development to determine Amsinckia species. Amsinckia species known from the project site and their indicator status are as follows: A spectabilis is FACU and A. menziesii is not listed. Conservatively, indicator status for A. spectabilis was used in the evaluation. Too early in development to determine Bromus and Avena species.

SOIL

Sampling Point: DS6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-15	10YR 2/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil sample was highly saturated and evaluation was not possible on 2/8/17. The sampling point was re-assessed during the 3/17/17 field assessment when conditions were suitable for evaluation of the sample. No hydric soil indicators were identified.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains have produced saturated conditions within this feature at the time of sampling. The water table is high, at approximately 10" below ground surface during the 2/8/17 field assessment.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS7

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): NE facing slope Local relief (concave, convex, none): slightly concave Slope (%): ~5

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: TrE3 - Tierra Loam (5 to 30 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point represents the defined swale feature upslope of the depression feature evaluated in DS1-DS6.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	25	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1. *Conium maculatum*	60	Yes	FACW
2. *Carduus pycnocephalus*	20	Yes	Not Listed
3. *Elymus triticoides*	15	No	FAC
4. *Rumex crispus*	3	No	FAC
5. *Brassica nigra*	2	No	Not Listed
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	60	x 2 =	120	
FAC species	18	x 3 =	54	
FACU species		x 4 =	0	
UPL species	47	x 5 =	235	
Column Totals:	125 (A)		409	(B)

Prevalence Index = B/A = 3.27

Hydrophytic Vegetation Indicators:

- ● Dominance Test is >50%
- ● Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks:

SOIL

Sampling Point: DS7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
							loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pit data not collected at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains resulted in flowing water within the defined swale during the 2/8/17 field assessment. Flowing conditions were not observed during the 2/28/17 field assessment. Width of the defined swale measured 18".

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 2/8/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS10

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): NE facing slope Local relief (concave, convex, none): slightly concave Slope (%): ~5

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: TrE3 - Tierra Loam (5 to 30 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ● (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ●	No ○	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: The sampling point represents the defined swale feature upslope of the depression feature evaluated in DS1-DS6.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Conium maculatum*	85	Yes	FACW
2. *Brassica nigra*	10	No	Not Listed
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	85	x 2 =	170	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species	10	x 5 =	50	
Column Totals:	95	(A)	220	(B)

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: DS10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
							loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pit data not collected at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The recent heavy rains resulted in flowing water within the defined swale during the 2/8/17 field assessment. Flowing conditions were not observed during the 2/28/17 field assessment. Width of the defined swale measured 22".

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS12

Investigator(s): John Davis IV and Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BoD2 - Botella Loam (2 to 15 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks: The location of the sampling point and surrounding area has experienced less frequent rainfall over the past several weeks and hydrologic conditions are more representative of typical conditions for this time of the year compared to early February.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	5	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Conium maculatum*	75	Yes	FACW
2. *Avena sp.*	5	Yes	Not Listed
3. *Brassica nigra*	20	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	105 (A)		300 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-7	7.5YR 3/2	100					loamy sand	
7-14	10YR 4/3	100					loamy sand	
14-16	10YR 4/3	98	7.5YR 5/8	2	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ●

Remarks: Sampling point located near the intersection between 2 other soil types per USDA-NRCS soil map; Corralitos sand (2 to 9 percent slopes) and Betteravia loamy sand (2 to 9 percent slopes).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ●	Depth (inches):
Water Table Present?	Yes ●	No ○	Depth (inches): 15"
Saturation Present? (includes capillary fringe)	Yes ○	No ●	Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is too low, at approximately 15" below ground surface, to meet A2. No other evidence of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS13

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: The location of the sampling point and surrounding area has experienced less frequent rainfall over the past several weeks and hydrologic conditions are more representative of typical conditions for this time of the year compared to early February.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	10	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Conium maculatum*	5	No	FACW
2. *Helminthotheca echioides*	73	Yes	FAC
3. *Ambrosia psilostachya*	10	No	FACU
4. *Cynodon dactylon*	12	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	73	x 3 =	219	
FACU species	10	x 4 =	40	
UPL species	22	x 5 =	110	
Column Totals:	110	(A)	379	(B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5YR 3/2	100					loamy sand	
14-18	10YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Sampling point located near the intersection between 2 other soil types per USDA-NRCS soil map; Corralitos sand (2 to 9 percent slopes) and Betteravia loamy sand (2 to 9 percent slopes). Soil pit is heavily saturated beginning at 6" depth. No identifiable redox in sample or soil pit walls. Bits of black plastic sheeting in pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 9" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS14

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: The location of the sampling point and surrounding area has experienced less frequent rainfall over the past several weeks and hydrologic conditions are more representative of typical conditions for this time of the year compared to early February.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	5	Yes	FACW
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Epilobium ciliatum*	10	Yes	FACW
2. *Helminthotheca echioides*	15	Yes	FAC
3. *Cyperus eragrostis*	5	No	FACW
4. *Raphanus sativa*	15	Yes	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	45 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	15	x 3 =	45	
FACU species		x 4 =	0	
UPL species	15	x 5 =	75	
Column Totals:	50 (A)		160	(B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	7.5YR 3/2	100					loamy sand	
9-14	7.5YR 3/2	50	10YR 2/1	50			sand	H2S odor

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks: Sampling point located near the intersection between 2 other soil types per USDA-NRCS soil map; Corralitos sand (2 to 9 percent slopes) and Betteravia loamy sand (2 to 9 percent slopes). Distinct H2S odor beginning 9" below the soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 9" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS15

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point was taken at a patch of conium maculatum south of the main potential wetland feature. Found to support hydrophytic vegetation and wetland hydrology.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Conium maculatum*	70	Yes	FACW
2. *Medicago polymorpha*	5	No	FACU
3. *Bromus diandrus*	15	No	Not Listed
4. *Brassica nigra*	2	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	92 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 8 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	70	x 2 =	140
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species	17	x 5 =	85
Column Totals:	92 (A)		245 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Conium maculatum patch is relatively isolated, surrounded by annual grasses and Baccharis pilularis.

SOIL

Sampling Point: DS15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	7.5YR 3/2	100					sand	
9-16	7.5YR 3/2	90	5YR 5/8	10	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Sampling point located near the intersection between 1 other soil types per USDA-NRCS soil map; Botella loam (2 to 15 percent slopes). Redox concentrations below indicator threshold for S5. Soil texture too sandy to qualify for F6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 10" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS16

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point was taken just outside of a patch of conium maculatum south of the main potential wetland feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	70	Yes	UPL
2. *Carduus pycnocephalus*	25	Yes	Not Listed
3. *Bromus diandrus*	5	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-7	10YR 4/3	100					sand	
7-14	10YR 4/3	40					sand	
	7.5YR 3/2	60					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Sampling point located near the intersection between 1 other soil types per USDA-NRCS soil map; Botella loam (2 to 15 percent slopes).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 11" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS17

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point found to support all three wetland parameters.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	5	No	UPL
2. *Gernaium dissectum*	2	No	Not Listed
3. *Rumex crispus*	10	Yes	FAC
4. *Avena sp.*	5	No	Not Listed
5. *Helminthotheca echioides*	15	Yes	FAC
6.			
7.			
8.			
Total Cover:	37 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 63 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species		x 2 =	0	
FAC species	25	x 3 =	75	
FACU species		x 4 =	0	
UPL species	12	x 5 =	60	
Column Totals:	37	(A)	135	(B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 3/2	100					sandy loam	
6-11	10YR 3/2	95	5YR 5/8	5	C	M	sandy loam	redox also found in PL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 7"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 7" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS18

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken within an area dominated by upland plant species. Hydric soil an wetland hydrology indicators present.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	45	Yes	UPL
2. *Gernaium dissectum*	1	No	Not Listed
3. *Bromus diandrus*	40	Yes	Not Listed
4. *Rumex crispus*	2	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	88 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 12 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	2	x 3 =	6
FACU species		x 4 =	0
UPL species	86	x 5 =	430
Column Totals:	88 (A)		436 (B)

Prevalence Index = B/A = 4.95

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 3/2	100					sandy loam	
4-14	10YR 3/2	95	5YR 5/8	5	C	M	loam	redox also found in PL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The water table is high, at approximately 6" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS19

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken within an area dominated by upland plant species slightly higher in elevation than DS18.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	30	Yes	UPL
2. *Medicago polymorpha*	2	No	FACU
3. *Bromus diandrus*	40	Yes	Not Listed
4. *Rumex crispus*	5	No	FAC
5. *Avena sp.*	15	No	Not Listed
6. *Bromus hordeaceus*	8	No	FACU
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	85	x 5 =	425
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-13	10YR 3/2	100					sandy loam	hit restrictive layer @ 13"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 11"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil pit became partially saturated at 11" depth.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS20

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point found to support all the wetland parameters.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	15	No	UPL
2. *Eleocharis macrostachya*	60	Yes	OBL
3. *Avena sp.*	5	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	60	x 1 =	60	
FACW species		x 2 =	0	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species	20	x 5 =	100	
Column Totals:	80	(A)	160	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	10YR 3/2	100					sandy loam	
3-8	7.5YR 3/2	90	5YR 4/6	10	C	M	sandy loam	redox also in PL
8-16	7.5YR 3/2	90	5YR 4/6	10	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ◯	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ◉	No ◯	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 11" depth. Soil pit is saturated above the water table.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS21

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos Sand (0 to 2 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks: Sampling point taken slightly higher in elevation than DS 20. No wetland indicators identified.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis*	80	Yes	UPL
2. *Bromus diandrus*	15	No	Not Listed
3. *Rumex crispus*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		490 (B)

Prevalence Index = B/A = 4.90

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6.5	7.5YR 3/2	100					loamy sand	
6.5-16	10YR 4/3	60	5YR 4/6	15	C	M	sand	small amount of loamy texture
	10YR 3/2	25					sand	but predominantly sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 13"
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is below the level to meet A2, at approximately 13" depth. Soil pit walls do not appear to be saturated even after soil pit was left open for ~10 min.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS22

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point found to support all the wetland parameters.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis macrostachya*	65	Yes	OBL
2. *Cynodon dactylon*	25	Yes	FACU
3. *Rumex crispus*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	25	x 4 =	100
UPL species		x 5 =	0
Column Totals:	95 (A)		180 (B)

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR 3/2	90	7.5YR 2.5/1	10	C	M	loamy sand	Mn concentrations apparent
8-13	10YR 4/3	90	7.5YR 2.5/1	10	C	M	sand	in matrix and PL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 13

Hydric Soil Present? Yes ◉ No ○

Remarks: Sampling point near intersection with 1 other soil type per USDA-NRCS soil map; CtA - Corralitos Sand (0 to 2 percent slopes). Very faint odor in the soil sample but not strong enough to confirm H2S.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is immediately below the ground surface. Very faint odor in soil pit.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS23

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken slightly higher in elevation than DS 22. Two wetland parameters identified in the sampling point.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Geranium dissectum*	89	Yes	Not Listed
2. *Cynodon dactylon*	10	No	FACU
3. *Lactuca serriola*	1	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	11	x 4 =	44
UPL species	89	x 5 =	445
Column Totals:	100 (A)		489 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-1.5	10YR 3/2	100					sandy loam	
1.5-6	10YR 3/2	85	7.5YR 2.5/1	15	C	M	sandy loam	Mn redox in matrix and PL
6-13	10YR 4/3	40	5YR 4/6	5	C	M	sand	
	10YR 3/2	50	7.5YR 2.5/1	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 13

Hydric Soil Present? Yes ◉ No ○

Remarks: Sampling point near intersection with 1 other soil type per USDA-NRCS soil map; CtA - Corralitos Sand (0 to 2 percent slopes).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 4.5"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 4.5" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS24

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken slightly higher in elevation than DS 23. Wetland hydrology indicators identified in the sampling point.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Geranium dissectum*	5	No	Not Listed
2. *Bromus diandrus*	95	Yes	Not Listed
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10YR 3/2	100					sandy loam	
2-5	10YR 3/2	60					sandy loam	
	10YR 3/1	40					sandy loam	
5-10	10YR 3/2	100					sandy loam	
10-12	10YR 3/2	98	7.5YR 2.5/1	2	C	M	sandy loam	Mn concentrations in sample

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 13

Hydric Soil Present? Yes ○ No ◉

Remarks: Sampling point near intersection with 1 other soil type per USDA-NRCS soil map; CtA - Corralitos Sand (0 to 2 percent slopes). Redox identified outside of threshold for F6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 11" below ground surface. Saturation was observed slightly above the water table level.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS25

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken in the western portion of the potential wetland feature. All three wetland parameters were identified.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Geranium dissectum*	5	No	Not Listed
2. *Helminthotheca echioides*	45	Yes	FAC
3. *Cynodon dactylon*	15	No	FACU
4. *Rumex crispus*	5	No	FAC
5. *Avena sp.*	10	No	Not Listed
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	50	x 3 =	150
FACU species	15	x 4 =	60
UPL species	15	x 5 =	75
Column Totals:	80 (A)		285 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: DS25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-1	10YR 3/2	100					loamy sand	
1-9	10YR 3/2	95	7.5YR 2.5/1	5	C	M	loamy sand	Mn concentrations in sample
9-16	10YR 4/3	90	7.5YR 2.5/1	5	C	M	sand	
	10YR 3/2	100	5YR 4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 9" below ground surface.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS26

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia Loamy Sand (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken in the western portion of the potential wetland feature, in slightly higher elevation that DS 25. Wetland hydrology indicators were identified.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus diandrus*	45	Yes	Not Listed
2. *Avena sp.*	40	Yes	Not Listed
3. *Medicago polymorpha*	2	No	FACU
4. *Lactuca serriola*	5	No	FACU
5. *Festuca perennis*	5	No	FAC
6.			
7.			
8.			
Total Cover:	97 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 3 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	7	x 4 =	28
UPL species	85	x 5 =	425
Column Totals:	97 (A)		468 (B)

Prevalence Index = B/A = 4.82

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	7.5YR 3/2	100					sand	
10-16	7.5YR 3/2	98	7.5YR 2.5/1	2	C	M	sand	Mn concentrations in sample

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 11" below ground surface. Saturation identified in soil pit slightly above the water table.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS27

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Sampling point taken in the rye grass grassland. Sampling point intended to re-assess the feature when hydrologic conditions were more typical for the season.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus triticoides*	50	Yes	FAC
2. *Geranium dissectum*	15	Yes	Not Listed
3. *Vicia sativa*	2	No	FACU
4. *Rumex crispus*	2	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	69 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 31 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species		x 2 =	0	
FAC species	52	x 3 =	156	
FACU species	2	x 4 =	8	
UPL species	15	x 5 =	75	
Column Totals:	69 (A)		239	(B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-15	7.5 YR 2.5/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pits no longer saturated and complete samples could be extracted and assessed. No redox indicators were identified in the sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is high, at approximately 11" below ground surface. Soil pit is saturated slightly above the water table.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 3/23/17

Applicant/Owner: Orcutt Rancho, LLC. State: CA Sampling Point: DS28

Investigator(s): Randall McInvale Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): flat Slope (%): ~0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: PnC - Pleasanton Sandy Loam (2 to 9 percent slopes) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks: Sampling point taken in the rye grass grassland slightly higher in elevation than DS 27.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus triticoides*	40	Yes	FAC
2. *Geranium dissectum*	35	Yes	Not Listed
3. *Vicia sativa*	5	No	FACU
4. *Carduus pycnocephalus*	8	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	88 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 12 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	40	x 3 =	120
FACU species	5	x 4 =	20
UPL species	43	x 5 =	215
Column Totals:	88 (A)		355 (B)

Prevalence Index = B/A = 4.03

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks:

SOIL

Sampling Point: DS28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	7.5 YR 2.5/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pits no longer saturated and complete samples could be extracted and assessed. No redox indicators were identified in the sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table is not present in soil pit. Saturation present at approximately 13"high, which does not meet criteria for A3.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 5/12/2017

Applicant/Owner: Orcutt Rancho, LLC. / Adams Family State: CA Sampling Point: S-SP-01

Investigator(s): Heather Moine Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): stream Local relief (concave, convex, none): concave Slope (%): ~1

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: CtA - Corralitos sand 0 to 2 percent slopes NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	100	Yes	FACW
2.			
3.			
4.			
Total Cover:	100%		
Sapling/Shrub Stratum			
1. *Salix lasiolepis*	2	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1. *Conium maculatum*	1	No	FACW
2. *Brassica nigra*	1	No	Not Listed
3. *Schoenoplectus californicus*	5	Yes	OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	7 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 91 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	103	x 2 =	206
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	109 (A)		216 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Natural vegetation. No observed disturbances. Indicator status from 2016 NWPL v3.3

SOIL

Sampling Point: S-SP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10 YR 5/3	100	-	-			sand	
4-8	7.5 YR 4/2	93	7.5 YR 5/8	2	C	RC	silty clay loam	Location in RC & PL
			10 YR 3/1	5	C	RC		
8-14	10 YR 4/2	97	2.5 YR 3/1	3	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ◉ No ◯

Remarks: Soils saturated from stream system

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ◯	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Within a stream area there are low flow channels with piped water outside the 20 foot sewer line easement

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 5/12/2017

Applicant/Owner: Orcutt Rancho, LLC. / Adams Family State: CA Sampling Point: S-SP-02

Investigator(s): Heather Moine Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia loamy sand 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ◯ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◯	No ◉	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks: Sample point is within agricultural fields that are maintained. Sample point is just outside of riparian (Salix lasiolepis) canopy within 20 feet of the sewer line easement

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Polypogon monspeliensis*	1	No	FACW
2. *Triticum aestivum*	5	Yes	Not Listed
3. *Brassica nigra*	1	No	Not Listed
4. *Anthemis cotula*	3	Yes	FACU
5.			
6.			
7.			
8.			
Total Cover:	10 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 90 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	1	x 2 =	2
FAC species		x 3 =	0
FACU species	3	x 4 =	12
UPL species	6	x 5 =	30
Column Totals:	10 (A)		44 (B)

Prevalence Index = B/A = 4.40

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks: Indicator status - 2016 NWPL v3.3

SOIL

Sampling Point: S-SP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10 YR 4/3	100	-	-			loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil type is same throughout the soil profile. The soil types look different in the photographs because the top 4 inches are wet due to irrigation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Within a stream area there are low flow channels with piped water outside the 20 foot sewer line easement

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 5/12/2017

Applicant/Owner: Orcutt Rancho, LLC. / Adams Family State: CA Sampling Point: S-SP-03

Investigator(s): Heather Moine Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): stream Local relief (concave, convex, none): concave Slope (%): ~1

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia loamy sand 2 to 9 percent slopes NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: Adjacent to agricultural field

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	85	Yes	FACW
2.			
3.			
4.			
Total Cover:	85 %		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium perenne - Festuca perennis*	15	Yes	FAC
2. *Helminthotheca echioides*	15	Yes	FAC
3. *Hordeum murinum*	2	No	FACU
4. *Ambrosia psilostachya*	2	No	FACU
5. *Polypogon monspeliensis*	2	No	FACW
6. *Juncus bufonius*	10	Yes	FACW
7. *Unknown grass*	4	No	
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	97	x 2 =	194
FAC species	30	x 3 =	90
FACU species	4	x 4 =	16
UPL species		x 5 =	0
Column Totals:	131 (A)		300 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Indicator status - 2016 NWPL v3.3

SOIL

Sampling Point: S-SP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	2.5 YR 5/2	100	-	-			sandy loam	
9-14	gley 1 2.5/N	100	-	-			sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ◉ No ○

Remarks: Dark matrix at 9+ inches

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 0
Water Table Present?	Yes ◉	No ○	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 1

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Natural water seep within stream

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Neighborhoods of Willow Creek/ Hidden Canyon City/County: Santa Barbara Sampling Date: 5/12/2017

Applicant/Owner: Orcutt Rancho, LLC. / Adams Family State: CA Sampling Point: S-SP-04

Investigator(s): Heather Moine Section, Township, Range: Section 7, Township 9 N, Range 34W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): -

Subregion (LRR): C - Mediterranean California Lat: See Figures Long: Datum:

Soil Map Unit Name: BmC - Betteravia loamy sand 2 to 9 percent slopes NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ◯ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◯	No ◉	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◯ No ◉
Wetland Hydrology Present?	Yes ◯	No ◉	

Remarks: Within agricultural field

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Vicia sativa*	4	No	FACU
2. *Polypogon monspeliensis*	5	No	FACW
3. *Avena barbata*	15	No	Not Listed
4. *Melilotus indicus*	20	Yes	FACU
5. *Anthemis cotula*	20	Yes	FACU
6. *Lysimachia arvensis*	1	No	FAC
7. *Polygonum aviculare*	20	Yes	FAC
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1. N/A			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	21	x 3 =	63	
FACU species	44	x 4 =	176	
UPL species	15	x 5 =	75	
Column Totals:	85	(A)	324	(B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◯ No ◉

Remarks: Indicator status - 2016 NWPL v3.3

SOIL

Sampling Point: S-SP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	2.5 YR 5/3	100	-	-			loamy sand	
3-12	10 YR 3/2	100	-	-			loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
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- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◯ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Neighborhoods of Willow Creek & Hidden Canyon **Date:** 3/23/17 **Time:**
Project Number: **Town:** **State:**
Stream: NE Ephemeral Channel **Photo begin file#:** **Photo end file#:**
Investigator(s): R McIntosh

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Downstream portion of the NE ephemeral channel

Projection: **Datum:**
Coordinates:

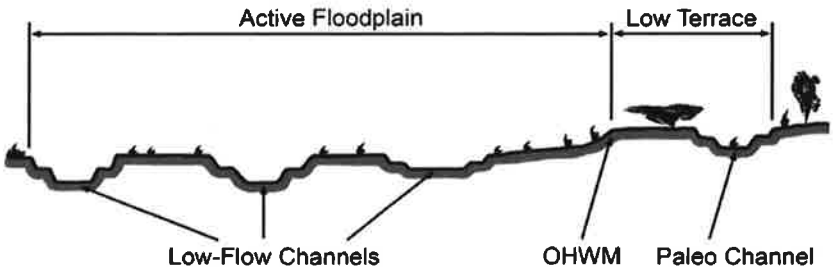
Potential anthropogenic influences on the channel system:
Drain pipe present at the upstream limit of the feature. Likely contributes to flows but volume is unknown.

Brief site description: Deeply incised channel formed in a N-facing slope. Largely unvegetated & appears to be somewhat stable - no significant erosion observed currently

Checklist of resources (if available):

- [X] Aerial photography
  Dates:
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [ ] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

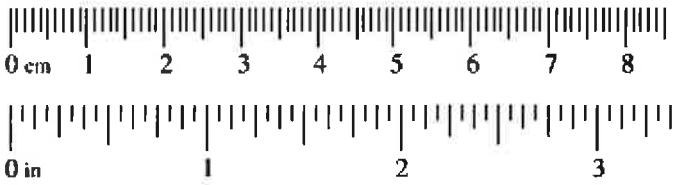


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [X] GPS
   - [ ] Other:

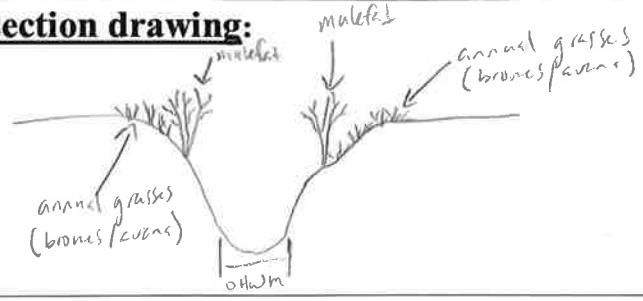
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	Gravel
	2.56	64	Cobble	
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



Project ID: **Cross section ID:** **Date:** 3/23/17 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM measurements taken in several locations along the channel reach. Immediately D/S of drain pipe, OHWM is clearly defined. No OHWM upslope of drain pipe. OHWM ends at the base of the hill slope where flow presumably fan out over wider area

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sandy loam

Total veg cover: 20 % Tree: 0 % Shrub: 15 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel is contained within the incised channel, which is mapped as top of bank.

Project ID: **Cross section ID:** **Date:** 3/23/17 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: 10 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Similar to low-flow channel, the active floodplain is contained within the incised channel, mapped as top of bank. No additional floodplain or terrace indicators above top of bank.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

APPENDIX B

Photo Exhibits

Appendix B
Photo Exhibits

Photo 1 – Hidden Canyon wetland feature, facing east (2/28/17)	Photo 2 – Hidden Canyon wetland feature, facing east (2/28/17)
Photo 3 – Hidden Canyon wetland feature, facing north (2/28/17)	Photo 4 – Hidden Canyon defined swale, facing south (2/28/17)

Appendix B
Photo Exhibits

Photo 5 – Hidden Canyon ephemeral channel, facing north (2/28/17)	Photo 6 – Hidden Canyon ephemeral channel, facing north (2/28/17)
Photo 7 – Hidden Canyon erosion feature, facing north (2/28/17)	Photo 8 – Hidden Canyon erosion feature, facing southeast (2/28/17)

Appendix B
Photo Exhibits

Photo 9 – Willow Creek rye grass grassland, facing southwest (2/8/17)	Photo 10 – Willow Creek defined swale upslope of rye grass grassland, facing northeast (2/8/17)
Photo 11 – Willow Creek swale feature, facing northeast (2/28/17)	Photo 12 – Willow Creek swale feature, undefined portion, facing northeast (2/28/17)

Appendix B
Photo Exhibits

Photo 13 – Willow Creek swale feature, defined portion, facing northeast (2/28/17)	Photo 14 – Willow Creek swale feature, undefined portion, facing north (2/28/17)
Photo 15 – Willow Creek unnamed tributary, facing north (2/8/17)	Photo 16 – Willow Creek unnamed tributary, facing northeast (2/8/17)

Appendix B
Photo Exhibits

Photo 17 – Wetland sampling point DS 12, representative upland (3/23/17)	Photo 18 – Wetland sampling point DS 24, representative upland (3/23/17)
Photo 19 – Wetland sampling point DS 14, representative wetland (3/23/17)	Photo 20 – Wetland sampling point DS 22, representative upland (3/23/17)

Appendix B
Photo Exhibits

Photo 21 – Proposed manhole location for project sewer tie-in to main sewer line within unnamed tributary. Sample Point S-SP-01 (5/12/17)	Photo 22 – Proposed manhole location for project sewer tie-in to main sewer line within unnamed tributary. Sample Point S-SP-01 (5/12/17)
Photo 23 – Proposed manhole location for project sewer tie-in to main sewer line within unnamed tributary. Sample Point S-SP-01 (5/12/17)	Photo 24 – Proposed manhole location for project sewer tie-in to main sewer line within unnamed tributary. Sample Point S-SP-01 (5/12/17)

Photo 25 – Sample Point S-SP-02. Paired sample point with S-SP-01 along proposed project sewer line (5/12/17)	Photo 26 – Sample Point S-SP-02. Paired sample point with S-SP-01 along proposed project sewer line (5/12/17)
Photo 27 – Sample Point S-SP-02. Paired sample point with S-SP-01 along proposed project sewer line (5/12/17)	Photo 28 – Sample Point S-SP-02. Paired sample point with S-SP-01 along proposed project sewer line (5/12/17)

Appendix B
Photo Exhibits

Photo 29 – Unnamed tributary within sewer line easement. Locations of S-SP-03 and S-SP-04 (3/17/17)	Photo 30 – Sample Point S-SP-03 in unnamed tributary along proposed project sewer line (5/12/17)
Photo 31 – Sample Point S-SP-03 in unnamed tributary along proposed project sewer line (5/12/17)	Photo 32 – Sample Point S-SP-03 in unnamed tributary along proposed project sewer line (5/12/17)

Photo 33 – Sample Point S-SP-04. Paired sample point with S-SP-03 along proposed project sewer line (5/12/17)	Photo 34 – Sample Point S-SP-04. Paired sample point with S-SP-03 along proposed project sewer line (5/12/17)
Photo 35 – Sample Point S-SP-04. Paired sample point with S-SP-03 along proposed project sewer line (5/12/17)	Photo 36 – Sample Point S-SP-04. Paired sample point with S-SP-03 along proposed project sewer line (5/12/17)

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California Tiger Salamander Aquatic Survey Results
Rancho Maria Golf Course
1950 State Highway 1 (APN 113-250-014)
Santa Barbara County, California

Submitted to:

U.S. Fish & Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003
Contact: Rachel Henry
(805) 644-1766

California Department of Fish & Wildlife
P.O. Box 1797
Ojai, CA 93024
Contact: Martin Potter
(805) 640-3677

May 2017

The survey described in this report was conducted by John Storrer, Jessica Peak, and Genelle Ives, under the authority of Mr. Storrer's Federal Recovery Permit and CDFW Scientific Collecting Permit.

Approvals for the survey location and methodology were obtained from the Ventura Field Office of the U.S. Fish and Wildlife Service and Regional Office of the California Department of Fish and Wildlife prior to initiation, as noted in the Reference Section of the report.

Signature of the permitted biologist and his permit numbers are provided below.

John Storrer

Federal Recovery Permit No.TE817397-5

CDFW Scientific Collecting Permit No. 3560

TABLE OF CONTENTS

Introduction 1
Study Objective 1
Regulatory Background.....1
Environmental Setting.....2
Regional Context (West Santa Maria Valley) 2
Study Site 2
Survey Methods.....3
Results 3
Discussion 4
Summary and Conclusions.....5
References 6

TABLES

Table 1: Summary of Pond Characteristics, Sampling Method, and Results 4

LIST OF FIGURES

Figure 1: Vicinity Map .....end of document
Figure 2: Project Site with Pond/Reservoir Locations .....end of document

APPENDICES

Appendix A: Site Photographs
Appendix B: California Natural Diversity Data Base Forms

Executive Summary

Aquatic surveys for California tiger salamander were conducted on the Rancho Maria Golf Course property on April 17, 2017. Four features, consisting of two historic irrigation ponds and two operational irrigation reservoirs were sampled. A fifth historic irrigation pond was examined but not sampled due to lack of surface water.

California tiger salamander larvae were found in one of the four impoundments surveyed, confirming that breeding occurred during the 2016/17 rainy season.

California red-legged frog larvae were found in one of the active irrigation reservoirs on the property, confirming breeding by this species during the 2016/17 rainy season.

Introduction

An aquatic survey for California tiger salamander (CTS) (*Ambystoma californiense*) was conducted on the Rancho Maria Golf Course property (APN 113-250-014) in the western Santa Maria Valley, Santa Barbara County, California (Site) on April 17, 2017 (Figure 1). The survey was performed by Storrer Environmental Services, LLC under contract to Rancho Maria Golf Course.

Study Objective

The purpose of the survey was to confirm breeding by CTS in "Known CTS Breeding Pond SAMA-21" (SAMA-21) and to determine whether breeding had occurred at any of the other irrigation ponds/reservoirs on the Site. SAMA-21 is mapped by the U.S. Fish and Wildlife Service (USFWS) as a known CTS breeding pond (USFWS 2010).

Status of SAMA-21 as a "known breeding pond" was apparently inferred from captures of adult CTS during an upland survey on the surrounding property conducted in 2004/05 (VJS Biological Consulting 2005). Background research for the present survey revealed no confirmation that the ponds had been sampled previously (e.g., voucher specimen or other museum record).

Regulatory Background

The Santa Barbara County Distinct Population Segment (DPS) of CTS was emergency listed by the USFWS as endangered under the Federal Endangered Species Act (ESA) in January of 2000 (USFWS 2000). Its distribution is limited to Santa Barbara County among six discrete regions. The six associated metapopulations inhabit ponds and adjacent uplands in the southwestern (West Orcutt) and southeastern (Bradley-Dominion) Santa Maria Valley, west Solomon Hills/north Los Alamos Valley, Purisima Hills, and Santa Rita Valley. The western Santa Maria Valley is the northwestern-most locality for CTS in Santa Barbara County.

The California Fish and Game Commission listed the Santa Barbara County DPS of the California tiger salamander as threatened under the California Endangered Species Act in August of 2010 (CDFW 2010).

Environmental Setting

Regional Context (Western Santa Maria Valley)

CTS ponds associated with the Santa Maria Valley (West Orcutt) subpopulation occur on the Orcutt Dune Sheet, an ancient windblown sand deposit that covers the southern one-half to two-thirds of the valley.

The western Santa Maria Valley is largely rural in character. Agriculture is the prevailing land use, consisting predominantly of irrigated row crops. There is also livestock grazing, in addition to limited residential and recreational development.

Site Description

Rancho Maria Golf Course is situated on a 129-acre parcel bounded by State Route 1 to the north (Figure 2). Most of the 129 acres is dedicated to recreational use associated with the 18-hole golf course. Adjoining land uses consist of cultivated agriculture to the north and west. Lower reaches of the Casmalia Hills lie to the south and southeast. These are largely undeveloped and are used primarily for livestock grazing.

There are three impoundments separated by earthen berms in the northwest portion of the Site (Figure 2). These were used historically for irrigation, but have not been in service for some time (O'keefe, 2017 personal communication). They have not sustained surface water for the past four years.

There are two active water storage reservoirs on the property (Figure 2). These are concrete-lined structures used to store groundwater extracted for irrigation. They also function as water hazards, making the course more challenging for golfers.

Known CTS Breeding Pond SAMA-21

At the time of the survey, SAMA-21 held surface water over an area measuring approximately 80 x 60 feet (Photo 1). The pond was approximately two feet at maximum depth. Willows (*Salix* sp.) were scattered on the margin of the pond and the surrounding berms were vegetated primarily with coyote brush (*Baccharis pilularis*). Emergent vegetation, including curly dock (*Rumex crispus*) and spikerush (*Eleocharis* sp.), was moderately dense and widely distributed in pond basin.

Historic Irrigation Pond #1

This pond was completely dry at the time of the survey and was not sampled (Photo 2). The bottom of the pond was vegetated entirely with upland species, including coyote brush, California sagebrush (*Artemisia californica*), poison hemlock (*Conium maculatum*), and annual grasses. This suggests that the pond has not been inundated for an extended period of time.

Historic Irrigation Pond #2

Historic Irrigation Pond #2 measured approximately 150 x 100 feet (Photo 3). Maximum water depth was about four feet. The pond was thickly vegetated with bulrush (*Schoenoplectus californicus*). Approximately 90 percent of the pond surface was covered

with duckweed (*Lemna* sp.). The bottom of the pond held a thick layer of decaying vegetation.

Irrigation Reservoir #1

Irrigation Reservoir #1 measured approximately 160 x 100 feet (Photo 4). Maximum depth was not determined. The bottom of the pond had a layer of sediment about a foot thick. There were a few small tufts of spikerush on the margin of the reservoir, but it was otherwise unvegetated. .

Irrigation Reservoir #2

Irrigation Reservoir #2 measured approximately 180 x 80 feet. Maximum depth was about three feet. The entire pond was covered with a thick mat of aquatic vegetation.

Survey Method

The survey was conducted on April 17, 2017 between the hours of 0955 and 1442 under overcast skies. A light rain fell intermittently during the survey period. Air temperature ranged between 68° and 70° F with a 5 mph southeast wind. The survey team was supervised by a permitted CTS biologist, John Storrer (Federal Recovery Permit No.TE817397-5, CDFW Scientific Collecting Permit No. 3560). Mr. Storrer was assisted by biologists Jessica Peak and Genelle Ives.

The shallower, more heavily vegetated historic irrigation ponds, including SAMA-21 were sampled using long-handled dip nets (Photo 5). The larger, deeper, more sparsely vegetated irrigation reservoirs were sampled using a 20-foot sein deployed by two biologists (Photo 6).

Twenty-one larvae from SAMA-21 were measured for total length. Tissue samples ("tail snips") were collected from each of these specimens and placed in 95% ethanol. The specimens were then released into SAMA-21. The tissue samples were transferred to USFWS personnel on April 25, 2017 and were to be delivered to Dr. Bradley Shaffer at UCLA for mDNA analysis. One voucher specimen was collected. It was delivered to the Department of Vertebrate Zoology at the Santa Barbara Museum of Natural History on April 19, 2017 for curation.

Results

Three species of larval amphibian were captured: CTS, Baja California treefrog (*Psuedacris hypochondriaca*), and California red-legged frog (*Rana draytonii*) (CRLF). Table 1 summarizes pond conditions and level of survey effort for each sampling location.

Table 1: Summary of Pond Characteristics, Sampling Method, and Results

Pond Designation	Pond Characteristics	Sampling Method	Captures
SAMA-21	80 x 60 feet; maximum depth = 2 feet; turbid. 64º F.	Dip Net. 30 passes.	*Ambystoma californiense* (21) larvae; 1-4 per pass with net. *Pseudacris hypochondriaca* (3) larvae.
Historic Irrigation Pond #1	Dry.	Not sampled.	No amphibian larvae captured.
Historic Irrigation Pond #2	150 x 100 feet; maximum depth = 4 feet, "tea" colored. 59º F.	Dip Net. 20 passes.	*Pseudacris hypochondriaca* (36) larvae; 0-4 larvae per pass with net.
Irrigation Reservoir #1	160 x 100 feet; maximum depth not determined, "aqua" colored. 68º F.	Sein. 2 passes on margin of reservoir.	*Rana draytonii* (46) larvae, (21) and (25) per pass with sein. *Pseudacris hypochondriaca* (3) larvae. Goldfish (*Carassius auritus*). (1)
Irrigation Reservoir #2	180 x 80 feet; maximum depth = 3 feet; clear. 70º F.	Sein. 1 pass through middle of reservoir.	No amphibian larvae captured.

CTS larvae were found only in SAMA-21, in moderate abundance. The larvae ranged in size from to 3.6 to 7.3 cm in total length. Some had begun to form limbs. Size distribution indicates there were likely two breeding events.

CRLF larvae were found only in Irrigation Pond #1, also in moderate abundance. The larvae were not measured. However, gross examination suggests there were at least two breeding events.

Baja California treefrogs were found in modest abundance in SAMA-21 and Historic Irrigation Pond #2. They were present in low numbers in Irrigation Reservoir #1.

One goldfish (*Carassius auritus*) was collected from Irrigation Reservoir #1. No other non-native vertebrates were captured in any of the other ponds or reservoirs.

Discussion

Upland drift fence surveys conducted in 2004/05 on the adjacent property resulted in capture of ten adult CTS (Semonsen 2005). These animals were presumed to be moving from upland habitats toward the ponds on the Rancho Maria Golf Course property for purposes of breeding. Aquatic surveys were not conducted as part of the 2004/05 surveys.

The aquatic survey described in this report confirms that CTS breeding did occur in SAMA-21 during the 2016/17 breeding season. This population remains extant. CTS were not found in the other three ponds/reservoirs sampled.

CRLF has been previously recorded in Irrigation Reservoirs #1 and #2 on the Rancho Maria Golf Course property (PRC Services Corporation 2003). CRLF larvae were found only in Irrigation Pond #1 during the subject survey. This population also remains extant.

Summary and Conclusions

Aquatic surveys conducted on April 17, 2017 confirm that CTS breeding occurred in SAMA-21 during the current breeding season. CTS larvae were not found in three other impoundments on the property.

CRLF larvae were captured incidental to the CTS sampling effort in Irrigation Reservoir #1.

References

California Department of Fish and Wildlife. 2010. California Code of Regulations Title 14,670.5, - Animals of California declared to be endangered or threatened, subdivision (b)(3)(G).

PCR Services Corporation. 2003. California Red-legged Frog Phase II Focused Survey Results for the Rancho Maria Golf Club Residential Project, Santa Barbara County, California.

Semonsen, V. 2005. Final Report – Rancho Maria Estates Drift Fence Study, 2004-05 for California Tiger Salamander (*Ambystoma californiense*). Prepared for Levine-Fricke. May 21, 2005.

U.S. Fish and Wildlife Service (USFWS). 2000. Final Rule to List the Santa Barbara County Distinct Population of the California Tiger Salamander as Endangered. Federal Register (FR 65, No. 184 pages 57242 – 57264. September 2000.

____. 2010. Maps of Ponds used by California Tiger Salamanders (Santa Barbara County Population). July 2010.

Personal Communications

Kofron, C. 2017. Senior Biologist and Recovery Permit Coordinator, U.S. Fish and Wildlife Service, Ventura Field Office. 2017 Approval Request CTS Aquatic Survey Rancho Maria Golf Course SBA Co: TE-817397 John R. Storrer. Electronic transmittal March 20.

O'keefe, K. 2017. Operations Manager, Rancho Maria Golf Course. Conversation on April 17, 2017.

Potter, M. 2017. Senior Environmental Scientist (Specialist), California Department of Fish and Wildlife, South Coast Region. Request for Request for Authorization to Conduct CTS Aquatic Survey - Rancho Maria Golf Course (APN 113-250-014), Santa Barbara County, California. Electronic transmittal March 29.

FIGURES

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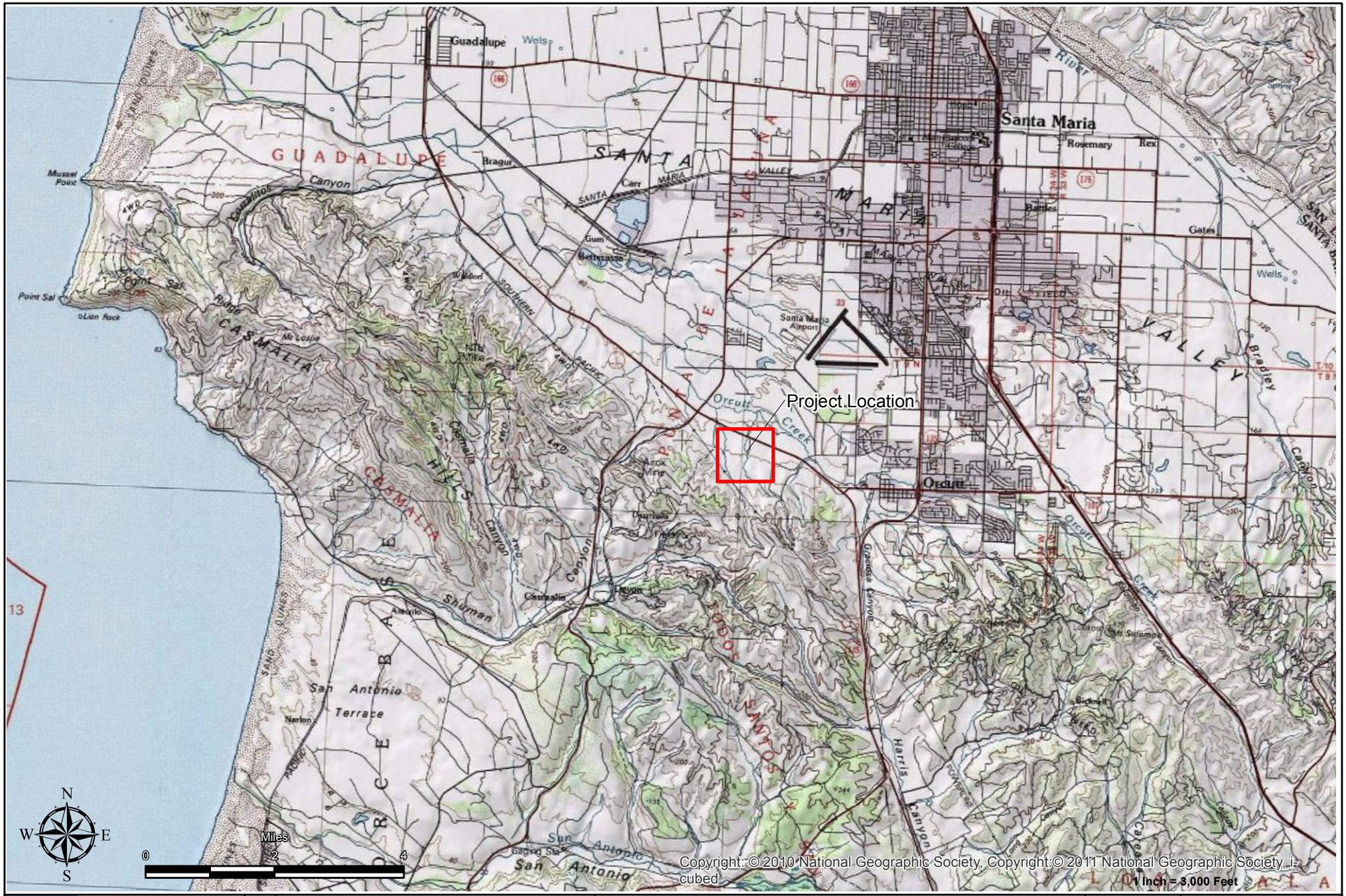

Terra Solutions
777 Mutsuhito Avenue
San Luis Obispo, CA. 93401
(805) 782-0969

Storrer Environmental Services
2565 Puesta del Sol #3
Santa Barbara, CA. 93105
(805) 682-2065
www.storrerenvironmental.com

Rancho Maria Golf Course
APN: 113-250-014
Santa Barbara County, California
Vicinity Map

Figure 1

March 17, 2017

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777 Mutsuhito Avenue
San Luis Obispo, CA. 93401
(805) 782-0969

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California Tiger Salamander *(Ambystoma californiense)*
Aquatic Survey Results
Rancho Maria Golf Course,
Santa Barbara County, California

Figure 2

May 3, 2017

APPENDIX A:
SITE PHOTOGRAPHS
(ALL PHOTOS TAKEN ON 17 APRIL 2017)

Photo 1: Known CTS Breeding Pond SAMA-21

Photo 2: Historic Irrigation Pond #1

Photo 3: Historic Irrigation Pond #2

Photo 4: Irrigation Reservoir #1

Photo 4: Irrigation Reservoir #2

Photo 5: Sampling SAMA-21 with Dip Nets

Photo 6: Sampling Irrigation Reservoir #2 with Seine

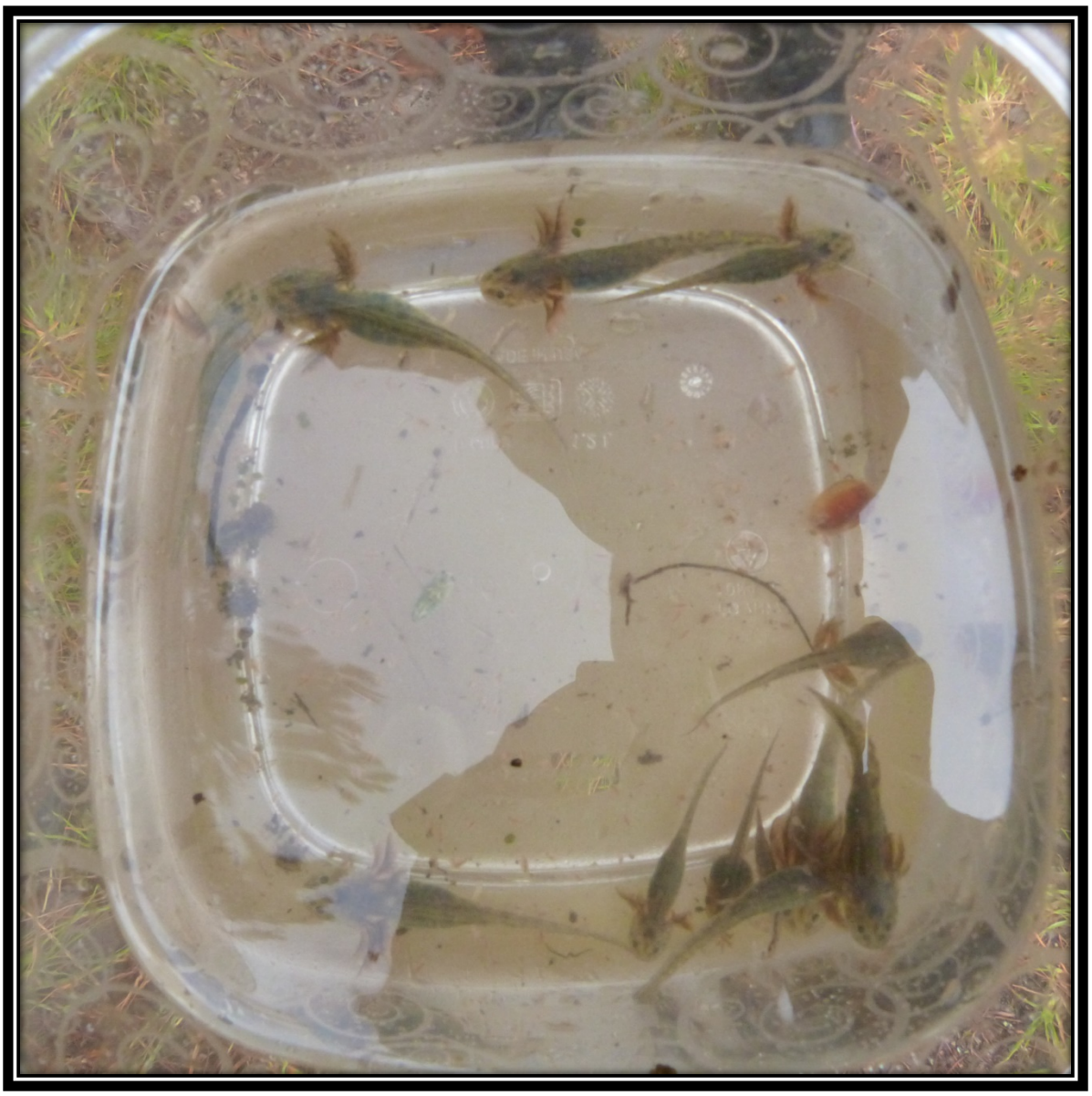

Photo 7: Larval CTS (*Ambystoma californiense*) Captured in SAMA-21

Photo 8: Larval CRLF (*Rana draytonii*) Captured in Irrigation Reservoir #1

APPENDIX B:
CALIFORNIA NATURAL DIVERSITY DATABASE FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 04/17/2017

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Ambystoma californiense*

Common Name: California Tiger Salamander

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 21 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: 1 Number — Santa Barbara Mus. of Natural History Museum / Herbarium

Reporter: John Storrer
Address: 2565 Puesta del Sol #3
Santa Barbara CA 93110
E-mail Address: john@storrerenvironmental.com
Phone: (805) 689-5982

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
0	0	21	0	0

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Known CTS Breeding Pond (SAMA 21) on USFWS (2010) Map

County: Santa Barbara Landowner / Mgr.: Rancho Maria Golf Course
Quad Name: Santa Maria Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 34.876416° N, -120.487243° W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Larvae captured during aquatic survey for CTS.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Golf course and cultivated agriculture.

Visible disturbances: Storage area adjacent to pond.

Threats: Chemicals (e.g., herbicides, fungicides) used at the golf course. Planned residential development of adjacent property (upland habitat).

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☑

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/17/2017

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Rana draytonii*

Common Name: California Red-legged Frog

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 46 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: John Storrer
Address: 2565 Puesta del Sol #3
Santa Barbara CA 93110
E-mail Address: john@storrerenvironmental.com
Phone: (805) 689-5982

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

0	0	46	0	0
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Irrigation pond at Ranch Maria Golf Course.

County: Santa Barbara Landowner / Mgr.: Rancho Maria Golf Course
Quad Name: Orcutt Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 34.868124° N, -120.479962°W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Larvae captured incidental to aquatic surveys for California tiger salamander (Ambystoma californiense).

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Golf course and cultivated agriculture.

Visible disturbances:

Threats: Chemicals (e.g. herbicides, fungicides) used on golf course . Planned residential development on adjacent property (upland habitat).

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Familiarity with species.

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☑

May we obtain duplicates at our expense? yes ☑ no ☐

Table C-1. Additional Evaluations for Special Status Plant Species not Included in Dudek 2019.

Scientific Name Common Name	Status Federal/State CRPR	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Abronia maritima red sand-verbena	None/None 4.2	Coastal dunes. Dune plant. 0-100 m. perennial herb. Blooms Feb-Nov	None	Not expected to occur. No suitable habitat present.
Amsinckia douglasiana Douglas' fiddleneck	None/None 4.2	Valley and foothill grassland, oak woodland. Monterey shale; dry habitats. 0-1950 m. annual herb. Blooms Mar-May	Moderate	Potentially suitable grassland and oak woodland is present. Species has potential to occur.
Arctostaphylos pechoensis Pecho manzanita	None/None 1B.2	Closed-cone coniferous forest, chaparral, coastal scrub. Grows on siliceous shale with other chaparral associates. 60-855 m. perennial evergreen shrub. Blooms Nov-Mar	Moderate	Potentially suitable coastal scrub is present. Species has potential to occur.
Arctostaphylos refugioensis Refugio manzanita	None/None 1B.2	Chaparral. On sandstone. 60-765 m. perennial evergreen shrub. Blooms Dec-Mar(May)	None	Not expected to occur. No suitable habitat present.
Astragalus nuttallii var. nuttallii ocean bluff milk-vetch	None/None 4.2	Coastal bluff scrub, coastal dunes. 3-120 m. perennial herb. Blooms Jan-Nov	None	Not expected to occur. No suitable habitat present.
Calystegia subacaulis ssp. episcopalis Cambria morning-glory	None/None 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. 5-475 m. perennial rhizomatous herb. Blooms (Mar)Apr-Jun(Jul)	Moderate	Potentially suitable grassland and woodland is present. Species has potential to occur.

Ceanothus cuneatus var. fascicularis Lompoc ceanothus	None/None 4.2	Chaparral. Sandy soils. 5-400 m. perennial evergreen shrub. Blooms Feb-Apr	None	Not expected to occur. No suitable habitat present.
Cercocarpus betuloides var. blancheae island mountain-mahogany	None/None 4.3	Chaparral, closed-cone coniferous forest. 30-600 m. perennial evergreen shrub. Blooms Feb-May	None	Not expected to occur. No suitable habitat present.
Chorizanthe palmeri Palmer's spineflower	None/None 4.2	Chaparral, cismontane woodland, valley and foothill grassland. Dry, rocky places and hillsides. Serpentine substrates. 60-945 m. annual herb. Blooms Apr-Aug	Moderate	Potentially suitable grassland and oak woodland is present. Species has potential to occur.
Convolvulus simulans small-flowered morning-glory	None/None 4.2	Chaparral, coastal scrub, valley and foothill grassland. Wet clay, serpentine ridges. 30-700 m. annual herb. Blooms Mar-Jul	Moderate	Potentially suitable grassland and coastal scrub is present. Species has potential to occur.
Deinandra paniculata paniculate tarplant	None/None 4.2	Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. 25-940 m. annual herb. Blooms (Mar)Apr-Nov	Moderate	Potentially suitable grassland, coastal scrub and vernally mesic wetlands are present. Species has potential to occur.
Diplacus vandenbergensis Vandenberg monkeyflower	Endangered/None 1B.1	Cismontane woodland, chaparral, coastal dunes. Sandy, often disturbed areas. 75-120 m. annual herb. Blooms Apr-Jun	None	Not expected to occur. Project is outside the current geographic range of the species.
Erigeron sanctarum saints' daisy	None/None 4.2	Chaparral, cismontane woodland, coastal scrub. 160-300 m. perennial rhizomatous herb. Blooms Mar-Jul	Moderate	Potentially suitable coastal scrub and oak woodland is present. Species has potential to occur.

Eriogonum elegans elegant wild buckwheat	None/None 4.3	Cismontane woodland, valley and foothill grassland. Usually in sandy or gravelly substrates; often in washes, sometimes roadsides. 200-1525 m. annual herb. Blooms May-Nov	Moderate	Potentially suitable grassland and oak woodland is present. Species has potential to occur.
Erysimum capitatum var. lompocense San Luis Obispo wallflower	None/None 4.2	Chaparral, coastal scrub. Sandy hillsides and mesas. 60-500 m. perennial herb. Blooms Feb-May	Moderate	Potentially suitable coastal scrub is present. Species has potential to occur.
Lupinus ludovicianus San Luis Obispo County lupine	None/None 1B.2	Chaparral, cismontane woodland. Open areas in sandy soil, Santa Margarita formation. 85-525 m. perennial herb. Blooms Apr-Jul	None	Project site is outside the current distribution of the species. This species is not expected to occur.
Malacothamnus jonesii Jones' bush-mallow	None/None 4.3	Chaparral, cismontane woodland. 160-825 m. perennial deciduous shrub. Blooms (Mar)Apr-Oct	Moderate	Potentially suitable oak woodland is present. Species has potential to occur.
Malacothrix incana dunedelion	None/None 4.3	Coastal dunes, coastal scrub. On flats and slopes, as well as unstabilized dunes near the ocean. 2-35 m. perennial herb. Blooms (Jan)Apr-Oct	None	Not expected to occur. No suitable habitat present.
Mucronea californica California spineflower	None/None 4.2	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland. Sandy soil. 0-1400 m. annual herb. Blooms Mar-Jul(Aug)	Moderate	Potentially suitable coastal scrub, grassland and oak woodland is present. Species has potential to occur.
Ophioglossum californicum California adder's-tongue	None/None 4.2	Chaparral, vernal pool areas, valley and foothill grassland. Grassy pastures, vernal pool margins,	Moderate	Potentially suitable grassland and vernally mesic wetlands are present. Species has

		chaparral. Mesic sites. 60-525 m. perennial rhizomatous herb. Blooms (Dec)Jan-Jun		potential to occur.
Phacelia hubbyi Hubby's phacelia	None/None 4.2	Chaparral, coastal scrub, valley and foothill grassland. Gravelly, rocky areas and talus slopes. 0-1000 m. annual herb. Blooms Apr-Jul	Moderate	Potentially suitable coastal scrub and grassland is present. Species has potential to occur.
Phacelia ramosissima var. austrolitoralis south coast branching phacelia	None/None 3.2	Chaparral, coastal scrub, coastal dunes, coastal salt marsh. Sandy, sometimes rocky sites. 5-300 m. perennial herb. Blooms Mar-Aug	Moderate	Potentially suitable coastal scrub is present. Species has potential to occur.
Prunus fasciculata var. punctata sand almond	None/None 4.3	Chaparral, coastal scrub, cismontane woodland, coastal dunes. Sandy flats. 15-200 m. perennial deciduous shrub. Blooms Mar-Apr	Moderate	Potentially suitable coastal scrub, grassland and oak woodland are present. Species has potential to occur.
Sanicula hoffmannii Hoffmann's sanicle	None/None 4.3	Broadleafed upland forest, coastal scrub, coastal bluff scrub, chaparral, cismontane woodland, lower montane coniferous forest. Cool slopes in deep soil, often in moist shaded serpentine soils, or in clay soils. 30-300 m. perennial herb. Blooms Mar-May	None	Not expected to occur. No suitable habitat present.
Senecio blochmaniae Blochman's ragwort	None/None 4.2	Coastal dunes. 0-100 m. perennial herb. Blooms May-Oct	None	Not expected to occur. No suitable habitat present.

Symphyotrichum defoliatum San Bernardino aster	None/None 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040 m. perennial rhizomatous herb. Blooms Jul-Nov	Moderate	Potentially suitable wetlands, coastal scrub, grassland and oak woodland are present. Species has potential to occur.

Source: California Native Plant Society Online Inventory of Rare and Endangered Plants of California (2019). Query conducted for the Orcutt, California USGS 7.5-minute topographic quadrangle and the eight surrounding quadrangles.

Appendix D

Archaeological Resources Investigation

wood.

December 20, 2018

Ms. Dana Eady
County of Santa Barbara Planning and Development Department
105 East Anapamu Street
Santa Barbara, CA 93101

RE: *Addendum, Phase 1 Archaeological Resources Investigation*
The Neighborhoods Specific Plan Project
Orcutt Area, Santa Barbara County

Dear Ms. Gerber:

This Addendum is being prepared for The Neighborhoods Specific Plan project area, including the proposed sewer line extension on Key Site 21 (see Figure 1) per the current County of Santa Barbara Guidelines (Revised February 2018), Section 2.3.2 Cultural Resources Identification:

> *Prior Survey. Normally, projects with a prior archaeological survey that is 10 years old or less may use the previous study, if the methods used for that survey meet the current standards. Surveys older than 10 years often used lower standards and should be repeated. If a previous study was sufficient, an addendum to the prior report must be completed that (1) updates all graphics to match the current development project; (2) discusses any change in interpretation, impacts, or mitigation; and (3) identifies changes in circumstances or new information of substantial importance that cause one or more effects to cultural resources. In addition, the addendum should identify whether cultural material was collected as part of the previous survey, and if so identify the location of the collection. Projects will be conditioned with the requirement of curation for any collection associated with prior studies that have not been curated. Negative surveys of adjacent or nearby properties, or negative surveys of only a portion of the subject property, will not be accepted as evidence that no cultural resources are present and a survey will be required.*

Previous Studies

The Neighborhoods Specific Plan project area and the proposed sewer line extension extending north of SR 1 on Key Site 21 have been subject to four prior archaeological investigations (Spanne 2004, Santoro and Toren 1995, Snethkamp and Colten 1982, Spanne 1980; see Figure 1). Two of the Phase 1 archaeological surveys of the proposed Specific Plan area (Spanne 2004, Santoro and Toren 1995) used 15-meter (50-feet) transect intervals and are, therefore, consistent with the current County of Santa Barbara Cultural Resources Guidelines. All four archaeological studies, discussed in detail in The Neighborhoods Specific Plan Environmental Analysis document, are briefly summarized below.

An Archaeological Evaluation for the Proposed Maria Verde Estates Project, Orcutt Area, County of Santa Barbara (Spanne 1980)

The proposed Neighborhoods Specific Plan project area, including Orcutt Community Plan Key Site 21, was surveyed by Larry Spanne, a County-qualified archaeologist, utilizing transect intervals spaced between 20- and 25-meters (65.5- and 82-feet) apart. No systematic background research was conducted beyond a "cursory records search" (Spanne 1980:1). Spanne (1980:A-1) characterized the survey conditions as:

> "Although the grass cover was relatively dense in most areas, surface visibility was adequate to observe any cultural materials which might have been present in most cases. Rodent mounds and periodic areas of sparse vegetation were common enough throughout the area to provide for surface observations. Hand clearing of vegetation was employed to observe the surface in those instances where vegetation cover was extremely dense."

Erosional cut banks were examined as well. The Phase 1 survey resulted in the identification of an historic-period trash dump and an isolated prehistoric chipped stone flake. The historic-period trash dump was located outside and southwest of proposed Neighborhoods Specific Plan improvement areas, on the east bank of an unnamed tributary flowing into Orcutt Creek, north of State Highway 1. This trash deposit was considered to be associated with the Juan Arrellanes Adobe, a structure dating to Mexican Rancho period of the mid-19th century.

The isolated Monterey chert flake was identified "at the margin of the [Rancho Maria Golf Course] 11th fairway just north of the putting surface," outside of the proposed Neighborhoods Specific Plan improvement footprint. Soils in this area of the golf course have been previously disturbed, and Spanne (1980:2) characterized the artifact as "an isolated find in areas where buried deposits are unlikely".

Orcutt Creek Archaeological Survey (Snethkamp and Colten 1982)

The survey of Orcutt Community Plan Key Site 22 (208 acres), within which the proposed sewer line extension is located north of State Highway 1, was conducted using 20-meter (65.5-foot) transect intervals by Roger Colten, M.A., a County-qualified archaeologist. Ground surface visibility, limited by dense annual grasses, was poor. Hand picks were used to remove the dense annual grasses every 20 meters; over 100 areas were cleared. Close attention was paid to rodent tailings. No cultural resources were identified within the portion of Key Site 22 within which the proposed sewer line extension is located.

Phase I Archaeological Survey for the Orcutt Community Plan (Santoro and Toren 1995)

Conducted in support of the County of Santa Barbara's Orcutt Community Plan EIR, the Phase 1 investigation surveyed Key Site 21, and re-surveyed Key Site 22 within which the proposed Specific Plan sewer line extension is located, north of State Highway 1. The intensive surface survey utilized transect intervals spaced no more than 15-meters apart, under the direction of Loren Santoro, RPA, a County-qualified archaeologist. In areas with dense vegetation, a 1 X 1-meter area was cleared every 15 meters to increase ground surface visibility. Overall, ground surface visibility was fair. No cultural resources were identified within Key Site 22, including within the proposed sewer line extension.

Supplemental Phase I Archaeological Survey Report for the Proposed Rancho Maria Estates Project, Rancho Maria Golf Club, 1950 State Highway 1, Orcutt, California (Spanne 2004)

An intensive Phase 1 archaeological re-survey of 140 acres, including all the proposed Neighborhoods Specific Plan project area (existing golf course fairways, greens, and clubhouse areas were not included), was conducted by Spanne using 15-meter (50-foot) transect intervals. The investigation also included a records search of the Central Coast Information Center, University of California, Santa Barbara. Surface visibility was adequate to detect any cultural resources that might have been present.

The trash deposits associated with the Arrellanes Adobe had been recorded as CA-SBA-1169/H by Greenwood, McIntyre, and Burkenroad (1980). Spanne relocated these deposits outside of the Neighborhoods Specific Plan area, west of the existing Rancho Maria Golf Course on the east bank of the unnamed Orcutt Creek tributary. He considered them to be "in excellent condition."

Spanne did not attempt to relocate the isolated Monterey chert flake he recorded in 1980, as it had been recorded within the Rancho Maria Golf Course boundaries and outside of the proposed project development envelope. This location is also outside of the proposed Neighborhoods Specific Plan project area.

No other prehistoric or historic cultural resources were identified during the 2004 Phase 1 investigation.

Native American Consultation

Freddie Romero, Cultural Resources Coordinator, Santa Ynez Band of Chumash Indians, attended a site visit with Frances Romero, Director, FORMA Design on May 17, 2018. Subsequent to the site visit, Mr. Romero requested the inclusion of the standard "unexpected discovery" condition as a Condition of Approval.

Summary

The Neighborhoods Specific Plan project area and the proposed sewer line extension extending north of SR 1 on Key Site 21 have been subject to four archaeological studies (Spanne 1980, Snethkamp and Colten 1982, Santoro and Toren 1995, and Spanne 2004). The two most recent studies were conducted by County-qualified archaeologists, included a records search at the CCIC, UCSB, and utilized 15-meter survey transect intervals. These investigations evaluated all proposed Neighborhoods Specific Plan project areas and were conducted consistent with the current County of Santa Barbara Cultural Resource Guidelines.

No cultural resources were identified within the Neighborhoods Specific Plan project area or the proposed sewer line extension on Key Site 21 during these most recent archaeological studies. Even though the previous archaeological investigation were conducted over 10 years ago, the studies were conducted consistent with current County of Santa Barbara Cultural Resources Guidelines. Therefore, since the previous archaeological studies were conducted consistent with the current County of Santa Barbara Cultural Resources Guidelines, no additional cultural resource investigations/studies are necessary.

Project Impacts

Potential project impacts on cultural resources resulting from buildout of the proposed Neighborhoods Specific Plan have been recently prepared (Stone 2018). They are referenced below.

Development under the proposed Neighborhoods Specific Plan would not directly impact CA-SBA-1159, as it would remain within the open space along the unnamed Orcutt Creek tributary drainage west of the Rancho Maria Golf Course. No direct impacts to the cultural resource would occur. The following OCP FEIR mitigation ARCH-1 would apply:

CR-1: All development within the boundaries of known archaeological sites shall be avoided and the site contained in open space or conservation easements to avoid damage. This area shall be seeded with shallow rooted vegetation. Capping the site may be permitted when avoidance of the site is not feasible.

CA-SBA-1159 would be preserved outside of proposed Neighborhood Specific Plan areas. Seeding the exposed cultural resources with shallow rooted vegetation would stabilize the ground surface and discourage illicit artifact collection. Residual impacts on this cultural resource would be *significant, but feasibly mitigated* (Class II). No cultural resources would be impacted by extension of the sewer line on Key Site 22.

The Neighborhoods Specific Plan area, formerly known as Key Site 21, has undergone two intensive Phase 1 surveys by qualified archaeologists (Santoro and Toren 1995, Spanne 2004) without any identification of potentially significant cultural resources except for one isolated Monterey chert flake located outside of the proposed residential envelope. The survey conditions were considered fair, such that the negative results are considered reliable. Therefore, the potential for encountering unknown prehistoric resources during proposed Project grading is considered low. The following OCP FEIR mitigation ARCH-10 would apply:

CR-2: In the event that archaeological or paleontological remains are uncovered during construction on any site, excavation shall be temporarily suspended and redirected until a County-qualified archaeologist and Native American representative are retained by the applicant to evaluate the find. If an archaeological site is found, OCP FEIR Mitigation Measures ARCH-3 (conduct Phase 2 significance testing) and if necessary, ARCH-4 (conduct Phase 3 data recovery mitigation) shall apply.

Specific Plan buildout and residential populations would increase the potential for illicit artifact collection and disturbance to CA-SBA-1159 resources in the Open Space area west of the development. Seeding the exposed cultural resources as identified under CR-1 with shallow rooted vegetation would reduce potential illicit artifact collection. The following OCP FEIR mitigation measure ARCH-7 would also apply:

CR-3: Off-road vehicle use, unauthorized collecting of artifacts, and other activities other than development which could destroy or damage archaeological or cultural sites shall be prohibited and any other sites where significant resources are found. Signs shall be posted on the property to discourage these types of activities.

Implementation of CR-2 would reduce project-specific indirect impacts to cultural resources to *significant, but feasibly mitigated* (Class II).

If you have any questions regarding this Phase 1 Investigation Addendum or require additional information, please do not hesitate to contact us. Thank you in advance.

Sincerely,

David Stone, RPA
Cultural Resources Manager

Ken Victorino, RPA
Senior Archaeologist

cc: Tony Wells, Orcutt Rancho LLC, Frances Romero, Forma

Attachment: Figure 1, Project Site and Previous Archaeological Investigations

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Greenwood, Roberta S., Michael J. McIntyre, and David C. Burkenroad
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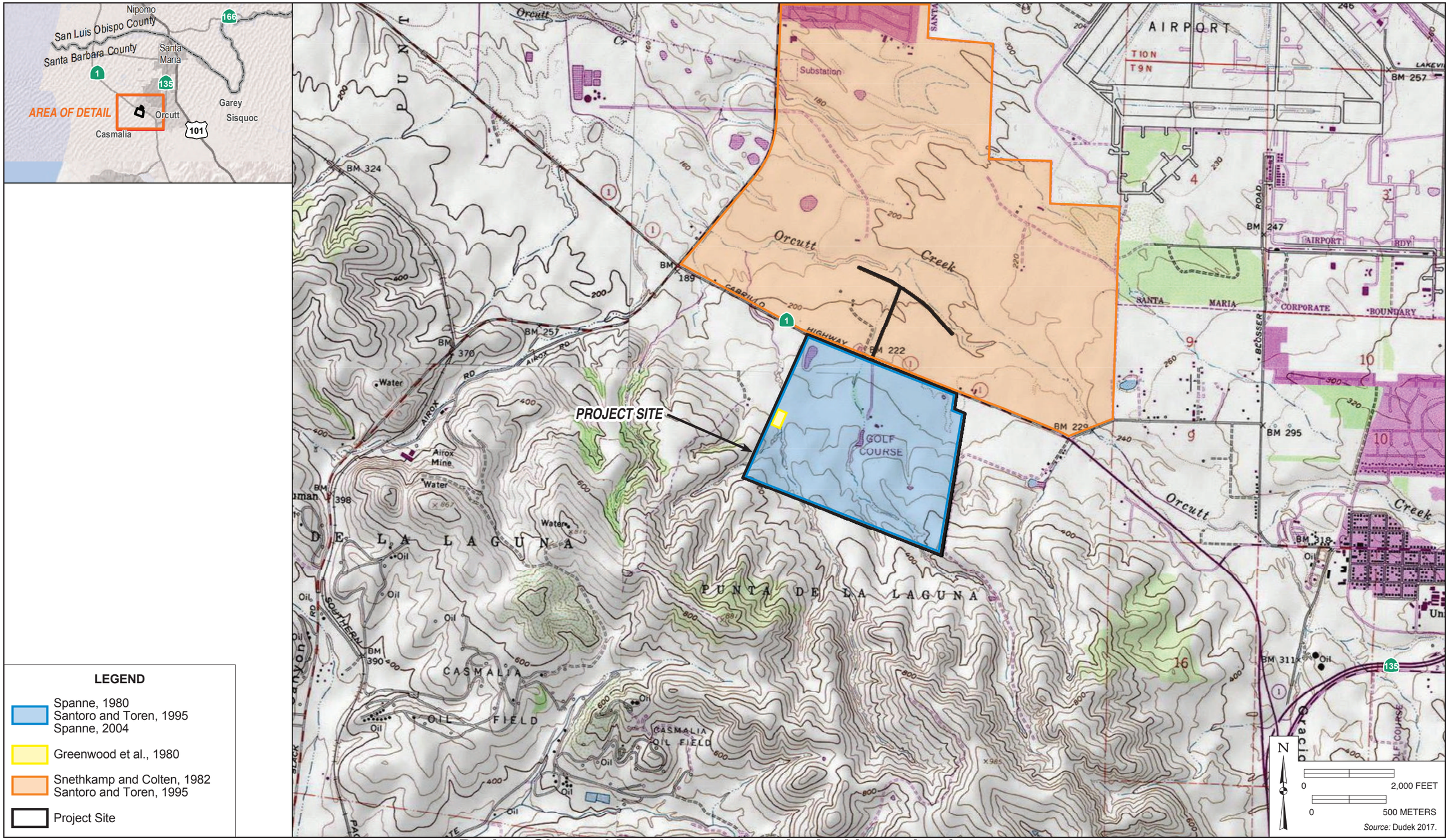

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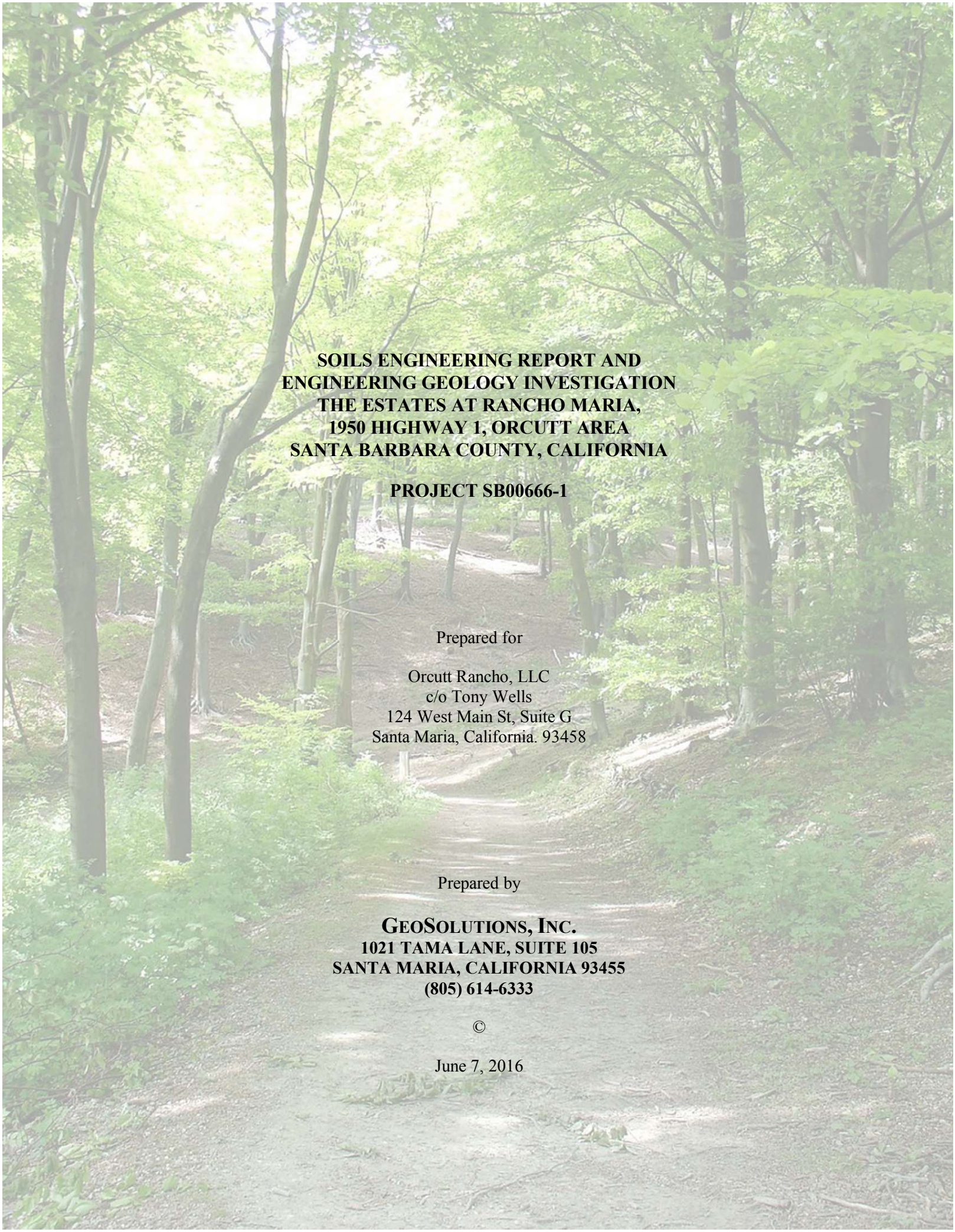
Project Site and Previous Archaeological Investigations
Phase 1 Archaeological Resources Addendum
The Neighborhoods Specific Plan

FIGURE 1

Appendix E

Soils Engineering Report and Engineering Geology Investigation



SOILS ENGINEERING REPORT AND ENGINEERING GEOLOGY INVESTIGATION THE ESTATES AT RANCHO MARIA, 1950 HIGHWAY 1, ORCUTT AREA SANTA BARBARA COUNTY, CALIFORNIA

PROJECT SB00666-1

Prepared for

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June 7, 2016
Project No. SB00666-1

Orcutt Rancho, LLC
c/o Tony Wells
124 West Main St, Suite G
Santa Maria, California 93458

Subject: **Soils Engineering Report and Engineering Geology Investigation**
The Estates at Rancho Maria, 1950 Highway 1
Orcutt Area, Santa Barbara County, California

Orcutt Rancho, LLC:

This Soils Engineering Report and Engineering Geology Investigation has been prepared for the residential development to be located at Rancho Maria Golf Club, 1950 Highway 1, in the Orcutt area of the County of Santa Barbara, California. This report includes a discussion of geological hazards and provides general recommendations.

It is anticipated that graded engineered fill pads will be constructed for the proposed residential development with all foundations excavated into engineered fill. All foundations are to be excavated into uniform material to limit the potential for distress of the foundation systems due to differential settlement. If cuts steeper than allowed by State of California Construction Safety Orders for "Excavations, Trenches, Earthwork" are proposed, a numerical slope stability analysis may be necessary for temporary construction slopes.

Thank you for the opportunity to have been of service in preparing this report. If you have any questions or require additional assistance, please feel free to contact the undersigned at (805) 614-6333.

Sincerely,
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TABLE OF CONTENTS

1.0 INTRODUCTION 6
1.1 Site Description 6
1.2 Project Description 6
2.0 PURPOSE AND SCOPE 7
3.0 FIELD AND LABORATORY INVESTIGATION 8
4.0 GEOLOGIC RECOMMENDATIONS 10
5.0 GEOLOGIC FINDINGS 10
5.1 Regional Geologic Conditions 10
5.2 Local Geology 11
5.3 Surface and Ground Water Conditions 11
6.0 LANDSLIDES 11
7.0 REGIONAL FAULTING AND SEISMICITY 12
8.0 TSUNAMIS AND SEICHES 12
9.0 FLOODING AND SEVERE EROSION 12
10.0 SEISMIC DESIGN CONSIDERATIONS 13
10.1 Seismic Hazard Analysis 13
10.2 Structural Building Design Paramters 13
10.2 Liquefaction Potential 14
10.3 Liquefaction Analysis 14
11.0 NUMERICAL SLOPE STABILITY 15
11.1 Slope/W Discussion 15
11.2 Laboratory Test Results 16
11.3 Discussion Of Modeling Conditions 16
11.4 Static Slope Stability Analysis 16
11.5 Pseudo-Static Slope Stability Analysis 17
12.0 GENERAL SOIL-FOUNDATION DISCUSSION 19
13.0 CONCLUSIONS AND RECOMMENDATIONS 19
13.1 Preparation of Building Pads 20
13.2 Conventional Foundations 20
13.3 Slab-On-Grade Construction 22
13.4 Retaining Walls and Site Walls 24
13.5 Preparation of Paved Areas 27
13.6 Pavement Design 28

14.0 ADDITIONAL GEOTECHNICAL SERVICES 29

15.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS 30

REFERENCES

PLATES

Plate 1 - Site Engineering Geologic Map and Site Cross Section
Plate 2A, 2B – Regional Geologic Map, Dibblee 1989/1994 and Geologic Explanations
Plate 3 – Regional Fault Map, Jennings, 2010
Plate 4 – Aerial Photograph

APPENDIX A

Field Investigation
Soil Classification Chart
Boring Logs

APPENDIX B

Laboratory Testing
Soil Test Reports

APPENDIX C

USGS Design Maps Summary
USGS Detailed Report

APPENDIX D

Preliminary Grading Specifications
Key and Bench with Backdrain

APPENDIX E

Liquefaction Analysis CPT-1
Liquefaction Analysis CPT-4

LIST OF FIGURES

Figure 1: Site Location Map 6

Figure 2: Site Plan 7

Figure 3: Section A-A (Static) 17

Figure 4: Section A-A (Psuedo-Static) 18

Figure 5: Section B-B (Static) 18

Figure 6: Section B-B (Psuedo-Static) 18

Figure 7: Section C-C (Static) 18

Figure 8: Section C-C (Psuedo-Static) 19

Figure 9: Setback Dimensions – Slope Gradients Between 3-to-1 and 1-to-1 22

Figure 10: Sub-Slab Detail 24

Figure 11: Retaining Wall Detail 25

Figure 12: Retaining Wall Active and Passive Wedges 26

LIST OF TABLES

Table 1: Engineering Properties 9

Table 2: Active Faults near the Subject Property 12

Table 3: Factors of Safety Results 17

Table 4: Minimum Footing and Grade Beam Recommendations 21

Table 5: Minimum Slab Recommendations 23

Table 6: Retaining Wall Design Parameters 24

Table 7: Recommended Equivalent Fluid Pressures 25

Table 8: Recommended Pavement Structural Sections 29

Table 9: Required Verification and Inspections of Soils 30

SOILS ENGINEERING REPORT AND
ENGINEERING GEOLOGY INVESTIGATION
THE ESTATES AT RANCHO MARIA,
1950 HIGHWAY 1, ORCUTT AREA
SANTA BARBARA COUNTY, CALIFORNIA

PROJECT SB00666-1

1.0 INTRODUCTION

This report presents the results of the geotechnical and geologic investigation for a residential development to be located at Rancho Maria Golf Club, 1950 Highway 1, in the Orcutt area of the County of Santa Barbara, California. See Figure 1: Site Location Map for the general location of the project area. Figure 1: Site Location Map was obtained from the computer program *Topo USA 8.0* (DeLorme, 2009).

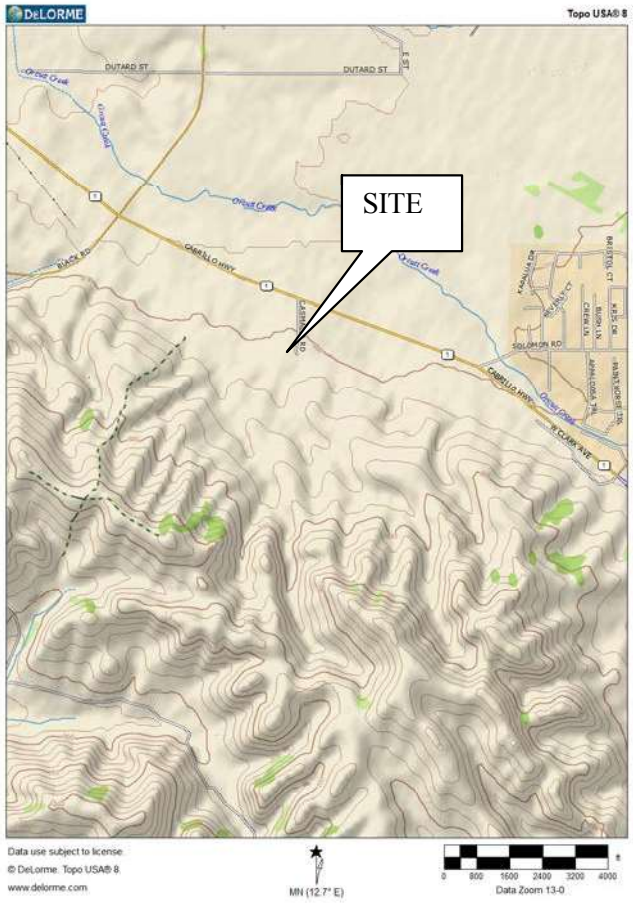

Figure 1: Site Location Map

1.1 Site Description

Rancho Maria Golf Club is located at 34.8720 degrees north latitude and 120.4835 degrees west longitude at a general elevation of 287 feet above mean sea level. The property is irregular in shape and 176 acres in size. The nearest intersection is where Casmalia Road intersects California Highway 1(Cabrillo Highway) to the north of the property. The project property will hereafter be referred to as the "Site." See Figure 2: Site Plan for the general layout of the Site.

The Site is situated on a hill that has a general downward slope to the north at approximately 3:1 (horizontal to vertical) then flattens out to 8:1. Surface drainage follows the topography to the north toward existing drainage gullies throughout the site that lead to Orcutt Creek approximately 2,000 to the north. The Site is currently vegetated by seasonal grasses, shrubs and various types of trees. An existing 18-hole golf course splits the west and east portions of the proposed development.

1.2 Project Description

The proposed residential development is anticipated to consist of 146 lots with associated roadways. It is our understanding that 91 lots are to be located on the west side of the property between holes 10, 11, 13, 14 and 18 (see Figure 2) and 56 lots are to be located on the east side of the property east of holes 3, 4, 5, and 7 (see Figure 2). At the time of the preparation of this report, the proposed residences are to be constructed using light wood framing.

Figure 2: Site Plan

2.0 PURPOSE AND SCOPE

The purpose of this study was to explore and evaluate the surface and sub-surface soil conditions at the Site to develop geotechnical information and design criteria, evaluate engineering geologic hazards at the Site and to develop geotechnical and geologic conclusions and recommendations regarding site development. The scope of this study includes the following items:

1. A literature review of available published geotechnical and geologic data pertinent to the project site.

2. A field study consisting of site reconnaissance and exploratory borings in order to formulate a description of the sub-surface conditions at the Site.

3. Laboratory testing performed on representative soil samples that were collected during our field study.

4. A review of regional faulting and seismicity hazards, landslide potential, surface water and groundwater conditions, and liquefaction hazards.

5. Engineering analysis of the data gathered during our literature review, field study, and laboratory testing.

6. Development of recommendations for site preparation and grading as well as geotechnical design criteria for foundations.

7. Preparation of this report that summarizes our findings, conclusions, and recommendations regarding engineering geology aspects of the project.

3.0 FIELD AND LABORATORY INVESTIGATION

The field investigation was conducted between the dates of April 7, and April 18, 2016 using a trailer-mounted Mobile B-24 drill rig and Cone Pentrometer Truck (CPT) provided by Middle Earth Geo Testing. Ten six-inch diameter exploratory borings were advanced to a maximum depth of 25 feet below ground surface (bgs) and four CPT soundings to a maximum depth of 33 feet bgs at the approximate locations indicated on Plate 1. Sampling methods included the Standard Penetration Test utilizing a standard split-spoon sampler (SPT) without liners and a Modified California sampler (CA) with liners. The Mobile B-24 drill rig was equipped with a safety hammer, which has an efficiency of approximately 60 percent and was used to obtain test blow counts in the form of N-values.

Data gathered during the field investigation suggest that the soil materials at the Site consist of interbedded layers of colluvium and alluvial soil overlying competent formational material. The surface material at the Site mapped as Orcutt Sands (Qo) along the southern portion of the Site generally consisted of varying shades of brown sandy SILT (ML) encountered in a slightly moist to dry and very hard condition from existing grade up to 6.0 feet bgs. The sub-surface materials consisted of varying shades of light brown silty SAND (SM) encountered in a slightly moist to dry and very dense condition.

The surface material in the lower elevation areas along the northern portion of the Site mapped as Older Alluvium (Qos) generally consisted of brownish gray to very dark grayish brown sandy SILT (ML) encountered in a dry condition at the northwest portion of the Site and in moist condition at the northeast side of the Site. The sub-surface materials consisted of varying shades of brown silty SAND (SM) encountered in a slightly moist condition at the northwest portion of the Site and saturated condition at the northeast side of the Site. See Appendix A for soil classification and description and Plate 1 for mapped geological units of the Site.

Groundwater was encountered at 12 feet below ground surface in boring B-5 but is expected to fluctuate seasonally.

During the boring operations the soils encountered were continuously examined, visually classified, and sampled for general laboratory testing. A project engineer has reviewed a continuous log of the soils encountered at the time of field investigation. See **Appendix A** for the Boring Logs from the field investigation.

Laboratory tests were performed on soil samples that were obtained from the Site during the field investigation. The results of these tests are listed below in Table 1: Engineering Properties. Laboratory data reports and detailed explanations of the laboratory tests performed during this investigation are provided in Appendix B.

Table 1: Engineering Properties

Sample Name	Sample Description	USCS Specification	Percent Fines (%)	Expansion Index	Plasticity Index	Expansion Potential	Maximum Dry Density, γ_d (pcf)	Optimum Moisture (%)	Angle of Internal Friction, ϕ (deg.)	Cohesion, c (psf)	R-Value
A	Dark Yellowish Brown Sandy SILT	ML	61.8	0	N.A.	Very Low	127.3	9.5	32.5	283	283
B	Yellowish Brown Silty SAND	SM	22.6	4	N.A.	Very Low	122.5	10.9	-	-	-
C	Very Dark Brown Sandy SILT	ML	61.7	0	N.A.	Very Low	-	-	-	-	-
D	Dark Yellowish Brown Clayey SAND	SC	-	-	-	-	122.9	9.4	28.9	622	622
E	Dark Yellowish Brown Clayey SAND	SM	23.3	0	N.A.	Very Low	-	-	-	-	-
F	Dark Gray Clayey SAND	SC	-	-	-	-	-	-	-	-	12
G	Brown Silty SAND	SM	-	-	-	-	-	-	-	-	25
B-5 @ 3 ft.	Brownish Gray Sandy SILT	ML	60.0	-	-	-	-	-	-	-	-
B-5 @ 9 ft.	Brownish Gray Silty SAND	SM	43.3	-	-	-	-	-	-	-	-
B-5 @ 14 ft.	Brownish Gray Silty SAND	SM	44.2	-	-	-	-	-	-	-	-
B-5 @ 19 ft.	Yellowish Brown Silty SAND	SM	41.3	-	-	-	-	-	-	-	-
B-10 @ 9 ft.	Brown Silty SAND	SM	32.0	-	-	-	-	-	-	-	-
B-5 @ 19 ft.	Yellowish Brown Silty SAND	SM	41.3	-	-	-	-	-	-	-	-
B-1 @ 4 ft.	Very Dark Grayish Brown Silty SAND with Gavel	SM	-	-	-	-	-	-	34.2	88	-
B-4 @ 8 ft.	Light Olive Brown Clayey SAND	SC	-	-	-	-	-	-	42.8	353	-

4.0 GEOLOGIC RECOMMENDATIONS

The proposed development is geologically suitable provided that the recommendations provided herein are implemented. The following are recommended for implementation at the Site.

1. It is recommended that numerical slope stability analyses be conducted on cut or fill slopes constructed steeper than 2-to-1 (horizontal to vertical). Locally steeper slopes may be allowed depending the results of a slope stability analysis.

2. The erosion gullies will be filled during grading, however sub drains may be required in these areas. The need for sub drains will be determined in the field at the time of construction.

3. Isolated seepage within formational units should be anticipated. Surface drainage facilities (graded swales, gutters, positive grades, etc.) are recommended at the base of cut slopes that allow surfacing water to be transferred away from the base of the slope. The project designer is recommended to offer specific design criteria for mitigation of water drainage behind walls and other areas of the site. This is especially imperative upslope of retaining walls for residences. Subsurface drainage systems should not be connected into conduit from surface drains and should not connect to downspout drainage pipes.

4. Surface drainage should be controlled to prevent concentrated water-flow discharge onto either natural or constructed slopes. Surface drainage gradients should be planned to prevent ponding and promote drainage of surface water away from building foundations, edges of pavements and sidewalks or natural or man-made slopes. For soil areas we recommend that a minimum of two (2) percent gradient be maintained.

5. Excavation, fill, and construction activities should be in accordance with appropriate codes and ordinances of the County of Santa Barbara. In addition, unusual subsurface conditions encountered during grading such as springs or fill material should be brought to the attention of the Engineering Geologist and Soils Engineer.

6. Rock rip-rap is recommended for concentrated drainage outfall locations that do not discharge onto paved or exposed rock surfaces. It is recommended that geotextile fabric (Enkamat 7010 or similar) be placed underneath the rip-rap and installed per the manufacturer's recommendations.

7. Gutters are recommended to be installed along all sloped rooflines. Gutter downspouts should not allow concentrated drainage to discharge near the residence foundations but rather should convey the water in solid piping away from the residence and toward drainage facilities.

5.0 GEOLOGIC FINDINGS

5.1 Regional Geologic Conditions

The Santa Maria Valley is located along the southern portion of the Coast Range province near the boundary with the Transverse Ranges geomorphic province of Southern California. The Santa Maria Valley is bounded between the Casmalia Hills to the south and the San Luis Range to the north. The Santa Maria basin is interpreted as a pull-apart structure from movement by the Little Pine-Foxen Canyon-Santa Maria River faults and the Santa Ynez fault (Clark and others, 1994). The Santa Maria Valley consists of greater than 200 feet of Quaternary age Alluvial deposits

underlain by Quaternary and Tertiary marine deposits. The site is located at the base of the Casmalia Hills.

5.2 Local Geology

Locally, the site is located within Orcutt Sand and Older Alluvium as depicted on Plate 1, Site Engineering Geology Map. Dibblee, 1989/1994 mapped the development as underlain by Quaternary age Orcutt Sand (Qo) and Older Alluvium (Qos) units. Information derived from subsurface exploration was used to classify subsurface soil and formational units and to supplement geologic mapping.

As described in Section 3.0, ten borings were drilled to determine the depth to formational units and determine the quality of the formational material. Plate 1 depicts Orcutt Sand (Qo) and Older Alluvium (Qos) throughout the property. Boring logs are presented in Appendix A.

5.2.1 Older Alluvium

Dibblee, 1989/1994 maps the lower flat portion of the development as within Older Alluvium (Qos). Dibblee, 1989 describes the Older Alluvium as "dune sand deposits." The Older Alluvium was mapped in the northern portion of the site, and was encountered within borings B-1 and B-5. The Older Alluvium at the site was observed to consist of dark grayish brown to yellowish brown Sandy SILT to Silty SAND. The thickness of the Older Alluvium at the Site is unknown but Dibblee, 1994 suggest the unit is approximately 100 feet thick.

5.2.2 Orcutt Sand

Dibblee, 1989/1994 maps the upper hillside portion of the development as within Orcutt Sand (Qo). Dibblee, 1989 describes the Orcutt Sand as "tan to rusty brown, poorly consolidated to locally indurated, wind-deposited sand, pebble gravel at base locally." The Orcutt Sand was mapped in the southern portion of the site, and was encountered within borings B-2 through B-4 and B-6 through B-10. The Orcutt Sand at the site was observed to consist of light gray Silty SAND with gravel. The thickness of the Orcutt Sand at the Site is unknown but Dibblee, 1994 suggest the unit is approximately 100 feet thick.

5.3 Surface and Ground Water Conditions

Surface drainage follows the topography north toward existing drainage gullies. Gully erosion was observed throughout the site in the immediate vicinity of the proposed development. The erosion gullies will be filled during grading, however sub drains may be required in these areas. The need for sub drains will be determined in the field at the time of construction. Drainage outfall from concentrated drainage should be directed away from proposed structures. No springs or seeps were observed at the project. Groundwater was observed within boring B-5 at a depth of 12 feet below ground surface.

6.0 LANDSLIDES

Dibblee, 19891994 did not map landslides in the vicinity of the property. During site mapping and review of aerial photography, landslides were not observed at the Site. Also, based on the results of the numerical slope stability analysis (see Section 13.0), there appears to be a low potential for landslide to affect the

proposed development. Plate 4 presents an aerial photograph. There is a low rockfall potential to affect the proposed residence based on the lack of boulders upslope of the proposed development.

7.0 REGIONAL FAULTING AND SEISMICITY

Many faults are mapped in the foothills of the Santa Ynez Mountains and coastal plains of Santa Barbara of varying types, lengths, and age. An active fault is one that shows evidence of displacement within the last 11,000 years (Recent epoch). A fault which displaces deposits of late Pleistocene age (500,000 to 11,000 years) but with no evidence of Recent movement is termed potentially active. Inactive fault is one that displace rocks of early Pleistocene or older (500,000 years or older).

Similar to the surrounding areas, the Site may be affected by moderate to major earthquakes centered on one of the known large, active faults listed in Table 1 below. Moment magnitudes are expressed, although any significant event on these faults could result in moderate to severe ground shaking at the subject site. The potential for ground failure of any portion of the Site during ground shaking is considered low.

Table 2: Active Faults near the Subject Property

Closest Active Faults to Site	Approximate Distance (miles)	Moment Magnitude (Mw)
Los Alamos	13.0	6.8
Hosgri	31.0	7.3
San Andreas	44.0	6.9

The closest known active portion of a Holocene age fault is an active portion of the Los Alamos fault that is located approximately 13.0 miles southeast of the Site (Jennings, 2010). Plate 3 is a Regional Fault Map for the area. The San Andreas fault is the most likely active fault to produce ground shaking at the Site although it is not expected to generate the highest ground accelerations because of its distance from the Site.

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 requires that the California State Geologist establish Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The subject site is not located within an Earthquake Fault Zone.

8.0 TSUNAMIS AND SEICHES

Tsunamis and seiches are two types of water waves that are generated by earthquake events. Tsunamis are broad-wavelength ocean waves and seiches are standing waves within confined bodies of water, typically reservoirs. As the property is at an elevation over 200 feet, the potential for a tsunami to affect the Site is low.

Flooding associated with a seismic event (seiche) is considered low due to the absence of a body of water upslope of the property.

9.0 FLOODING AND SEVERE EROSION

The site is not located within or near the 100-year or 500-year flood zone based on Federal Emergency Management Agency flood zone maps (FEMA, 2012).

The surficial and formational deposits are subject to erosion where not covered with vegetation or hardscape. The potential for severe erosion is considered low provided that vegetation and erosion control measures are implemented immediately after the completion of grading.

10.0 SEISMIC DESIGN CONSIDERATIONS

10.1 Seismic Hazard Analysis

1. According to section 1613 of the 2013 CBC (CBSC, 2013), all structures and portions of structures should be designed to resist the effects of seismic loadings caused by earthquake ground motions in accordance with the *Minimum Design Loads for Buildings and Other Structures* (ASCE7) (ASCE, 2010). ASCE7 considers the most severe earthquake ground motion to be the ground motion caused by the Maximum Considered Earthquake (MCE) (ASCE, 2010), which is defined in Section 1613 of the 2013 CBC to be short period S_{MS} and 1-second period S_{M1}, spectral response accelerations.

2. The a_{max} of the Site depends on several factors, which include the distance of the Site from known active faults, the expected magnitude of the MCE, and the Site soil profile characteristics.

3. As per section 1613.3.2 of the 2013 CBC (CBSC, 2013), the Site soil profile classification is determined by the average soil properties in the upper 100 feet of the Site profile (ASCE 7). Based on the $(N_1)_{60}$ values calculated for the in-situ tests performed during the field investigation, the Site was defined as Site Class D, Stiff Soil profile per ASCE 7 Chapter 20.

4. According to section 11.2 of ASCE7 and section 1613 of the 2013 CBC (CBSC, 2013), buildings and structures should be specifically proportioned to resist Design Earthquake Ground Motions (Design a_{max}). ASCE7 defines the Design a_{max} as "the earthquake ground motions that are two-thirds of the corresponding MCE ground motions" (ASCE, 2006, p. 109). Therefore, the **Design a_{max} for the Site is equal to S_{D1}=0.427 and S_{DS}=0.759,** which are 1-second period and short period design spectral response accelerations that are equal to two-thirds of the a_{max} or MCE for the Site.

5. Site coordinates of 34.8699 degrees north latitude and 120.4831 degrees west longitude and a search radius of 100 miles were used in the probabilistic seismic hazard analysis.

10.2 Structural Building Design Paramters

1. Structural building design parameters within chapter 16 of the 2013 CBC (CBSC, 2013) and sections 11.4.3 and 11.4.4 of ASCE7 are dependent upon several factors, which include site soil profile characteristics and the locations and characteristics of faults near the Site. As described in section 4.1 of this report, the Site soil profile classification was determined to be Site Class D. This Site soil profile classification and the latitude and longitude coordinates for the Site were used to determine the structural building design parameters.

2. Spectral Response Accelerations and Site Coefficients were obtained from the Seismic Hazard Curves and Uniform Hazard Response Spectra, U.S. Seismic Design Map computer application (USGS, 2013); this program is available from the United States

Geological Survey website (USGS, 2013). This computer program utilizes the methods developed in the 1997, 2000, 2003, 2008 and 2013 errata editions of the NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures and user-inputted Site latitude and longitude coordinates to calculate seismic design parameters and response spectra (both for period and displacement), for Site Classifications A through E. Analysis of the Design Spectral Response Acceleration Parameters for the Site and of the Occupancy Category for the proposed structure assign to this project a **Seismic Design Category of D** per Tables 1613.3.5(1) and 1613.3.5(2) of the 2013 CBC (CBSC, 2013).

3. The site specific MCE peak ground acceleration (**PGA_M**) as determined by the USGS computer program (web based) **PGA_M = 0.453** which is present on Sheet 5 of 6 of the USGS Design Maps Detailed Report (ASCE 7-10 Standard). See **Appendix C:** USGS Design Maps Summary and Detailed Report. This **PGA_M** was utilized in our liquefaction analysis.

10.2 Liquefaction Potential

1. Liquefaction occurs when saturated cohesionless soils lose shear strength due to earthquake shaking. Ground motion from an earthquake may induce cyclic reversals of shear stresses of large amplitude. Lateral and vertical movement of the soil mass combined with the loss of bearing strength usually results from this phenomenon. Please see **Appendix E**, Liquefaction Analysis Sheets for complete numerical analysis as well as for the numerical factors of safety against liquefaction.

2. Liquefaction potential of soil deposits during earthquake activity depends on soil type, void ratio, groundwater conditions, the duration of shaking, and confining pressures on the potentially liquefiable soil unit. Fine, poorly graded loose sand, shallow groundwater, high intensity earthquakes, and long duration of ground shaking are the principal factors leading to liquefaction.

3. The determination that Site soils are liquefiable was made following guidelines set forth in, "Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils, 1997." The procedure is termed the "simplified procedure" and is the current standard of care for liquefaction analysis.

10.3 Liquefaction Analysis

1. GeoSolutions, Inc. utilized computer software program NovoCPT 3.41.216.527 by NovoTech which was developed using methods recommended in most recent publication, NCEER Workshop and SP117 Implementation was used to determine the liquefaction and settlement potential of the Site. Seismic load is estimated with Seed's simplified method (Seed, 1971), which uses a Cyclic Stress Ratio (CSR) this is compared to the Cyclic Resistance Ration (CRR) of the soil.

2. CPT soundings of the Site indicated the presence of saturated CLAY, SILT and SAND type soils encountered in a medium dense to very dense and very stiff to Hard condition at various depths from ground surface (bgs) to termination of CPT sounds at 35 feet bgs. These values are used to determine Factors of Safety (FOS) for isolated layers below ground surface. Overall seismic settlement on the order of less than 0.5 inches where obtained from the program with (FOS) less than 1.3 for the sand soils encountered at

various depths below ground surface. The results from this analysis are summarized in **Appendix E** of this report.

3. Based on the presence of sandy and clayey soils, the relative density of the in-situ soils, the depth to groundwater, and the expected ground acceleration caused by the Design Base Earthquake, the potential for seismic liquefaction of Site soils is low.

11.0 NUMERICAL SLOPE STABILITY

A slope stability analysis was performed on the critical slopes for the proposed development. The purpose of the analysis was to determine the stability of the critical locations for the existing slopes in the vicinity of the proposed development. Utilizing the results of laboratory testing performed on representative samples of soil and rock material from the slope area, the numerical slope stability analysis was performed utilizing SLOPE/W, a computer-modeling program by Geo-Slope International, Limited (Geo-Slope, 2002). SLOPE/W is a computer software program that uses limit equilibrium theory to compute the factor of safety of earth slopes. The engineering standard for permanent slopes is a factor of safety of 1.5 and 1.1 for pseudo-static (seismic) conditions. A factor of safety less than unity (1.0) is considered unstable.

The numerical slope stability analysis was conducted for the site utilizing subsurface information derived from exploratory borings. The slope stability analysis was conducted to ascertain stability of the subsurface materials. Section A-A traverses through the proposed western portion of the development, Section B-B traverses through the proposed eastern portion of the development, and Section C-C tranverses the existing gully in the southeast corner of the property (see Plate 1). The elevations used to perform the analysis were produced by Fargen Surveys, dated January, 2016.

11.1 Slope/W Discussion

SLOPE/W was utilized to determine the critical factor of safety. SLOPE/W performs the stability analysis by passing a slip surface through the earth mass and dividing it into vertical slices. To compute the factor of safety, SLOPE/W utilizes the theory of limit equilibrium of forces and moments. The limit equilibrium method may be utilized to analyze circular and noncircular failure surfaces and assumes that:

1. The soil behaves as a Mohr-Coulomb material.
2. The factor of safety of the cohesive component of strength and the frictional component of strength are equal for all soils involved.
3. The factor of safety is the same for all slices.

The General Limit Equilibrium formulation and solution may be used to simulate most of the commonly used methods of slices. The characteristics of Spencer's method are identified as an "satisfies all conditions of equilibrium; applicable to any shape of slip surface; assumes that inclinations of side forces are the same for every slice; side force inclination is calculated in the process of solution so that all conditions of equilibrium are satisfied; accurate method; 3N equations and unknowns" (Duncan, 1996).

Each potential slip surface results in a different value for factor of safety. The smaller the factor of safety (the smaller the ratio of shear strength to shear stress required for equilibrium), the greater the potential for failure to occur by movement on that surface. Movement is most likely to occur on the slip surface with the minimum factor of safety. This is referred to as the critical slip surface. However, for movement to occur the ratio must be below 1.0.

The general method of analysis involves computing the factor of safety and associated slip surface for multiple nodes within a grid-like pattern on the diagram, shown above the ground surface. By placing a set of radius lines within the soil profile, the slip surfaces are forced to reside within and tangent to the radius lines. Through computer iterations, the program derives a set of factor of safety contour lines. The minimum value within the set of contour lines is the resulting minimum factor of safety and produces the critical slip surface.

11.2 Laboratory Test Results

Direct shear tests were performed on soil and rock samples from the subsurface investigation. The purpose of this data was to determine the soil resistance to deformation (shear strength), interparticle attraction (cohesion), and resistance to inter-particle slip (angle of internal friction). Angle of internal friction and cohesion values for all formational units were utilized from laboratory test results. The boring logs present the location that samples were collected and laboratory results are attached at the end of this report.

Moisture density relation curves, developed in accordance with ASTM D1557-91, five-layer method, were performed on representative samples obtained from the slope area. The purpose of the relation curve is to determine the maximum density and optimum moisture contents, as well as evaluate the stability of the soils. The laboratory sheets depict the dry unit weight of soil and have been converted to the unit weight (γ) for use in the stability analysis.

11.3 Discussion Of Modeling Conditions

Modeling conditions for the following slopes included:

Section A-A' - The existing slope through the site included: 1) an existing natural slope flattening out to the north; 2) consisting of colluvium underlain by Orcutt Sand (Qo) and Older Alluvium (Qos) in the flats to the north; and 3) no groundwater. Groundwater was not modeled due to a lack of groundwater observed within the subsurface investigation.

Section B-B' - The existing slope through the site included: 1) an existing natural slope flattening out to the north; 2) consisting of colluvium underlain by Orcutt Sand (Qo) and Older Alluvium (Qos) in the flats to the north; and 3) no groundwater. Groundwater was not modeled due to a lack of groundwater observed within the subsurface investigation.

Section C-C' - The existing slope through the site included: 1) an existing gully slope; 2) consisting of colluvium underlain by Orcutt Sand (Qo); and 3) no groundwater. Groundwater was not modeled due to a lack of groundwater observed within the subsurface investigation.

The depth of subsurface materials was determined by the project Engineering Geologist by studying surface geologic conditions, observations during exploratory borings, and available geologic maps.

11.4 Static Slope Stability Analysis

Our analysis resulted in a range of values for factor of safety and their respective slip surfaces. The lowest factor of safety value corresponds to the critical slip surface. This critical slip surface does not necessarily result in the largest slip surface. The critical static factors of safety values are presented in Table 3. The potential critical slip surfaces for static conditions are presented on Figures 3, 5 and 7.

Table 3: Factors of Safety Results

Section	Static Factor of Safety	Psuedo-Static Factor of Safety
A-A	8.76	3.8
B-B	6.06	3.31
C-C	3.32	2.4

The static stability analyses performed for the slope configurations as illustrated in Section A-A, B-B, and C-C. The minimum engineering standard for static factors of safety is 1.5. **Section A-A, B-B, and C-C resulted in critical static factor of safety values above the minimum standard, indicating that they reflect stable conditions.**

11.5 Pseudo-Static Slope Stability Analysis

As the slope may be affected by seismic events, a dynamic loading condition was applied to the slope model (pseudo-static conditions). As stated in *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CDMG, 1997), "In California, many state and local agencies, on the basis of local experience, require the use of a seismic coefficient of 0.15, and a minimum computed pseudo-static factor of safety of 1.0 to 1.2 for analysis of natural, cut, and fill slopes. Basic guidelines for making preliminary evaluations of embankments to ensure acceptable performance…were: using a pseudo-static coefficient of 0.10 for magnitude 6.5 earthquakes and 0.15 for magnitude 8.25 earthquakes, with an acceptable factor of safety of the order of 1.15." Calculations for pseudo-static numerical analysis within these iterations utilized a seismic coefficient of 0.15 g.

The numerical slope stability analysis resulted in a range of values for factor of safety. The lowest factor of safety value corresponds to the critical slip surface. This critical slip surface does not necessarily result in the largest slip surface. The critical static factors of safety values are presented in Table 3. The potential critical slip surfaces for psuedo-static conditions are presented on Figures 4, 6 and 8.

The pseudo-static (seismic) stability analyses performed for the slope configurations as illustrated in Section A-A, B-B, and C-C. The minimum engineering standard for pseudo-static factors of safety is 1.1. **Section A-A, B-B, and C-C resulted in critical pseudo-static factor of safety values above the minimum standard, indicating that they reflect stable conditions.**

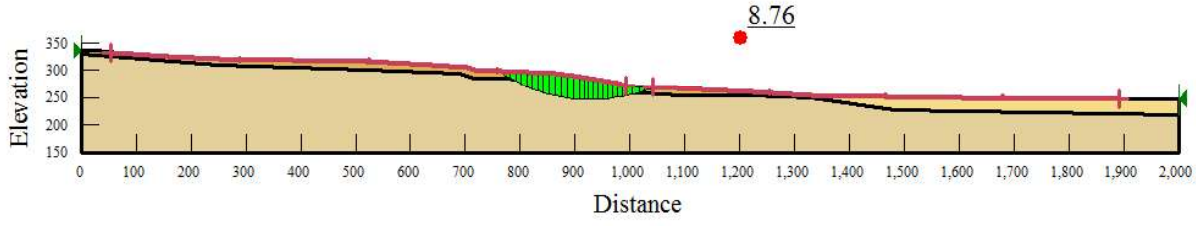

Figure 3: Section A-A (Static)

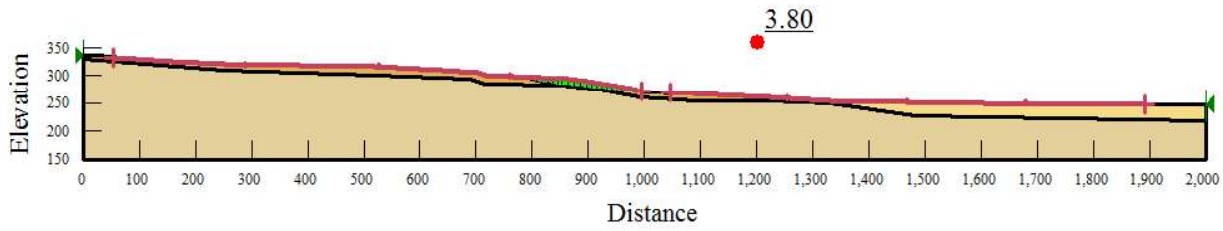

Figure 4: Section A-A (Psuedo-Static)

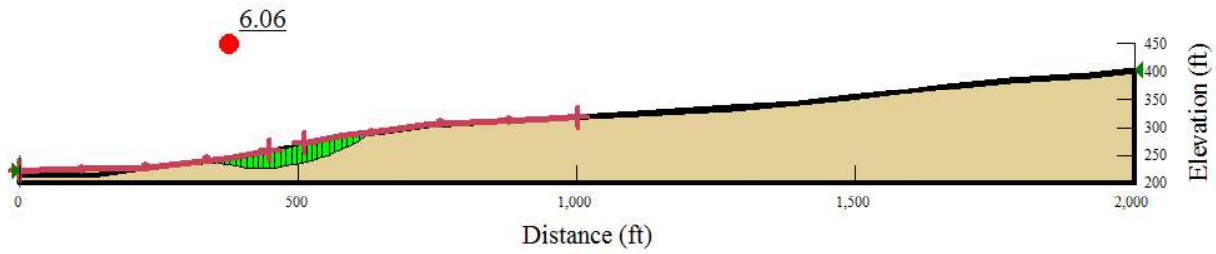

Figure 5: Section B-B (Static)

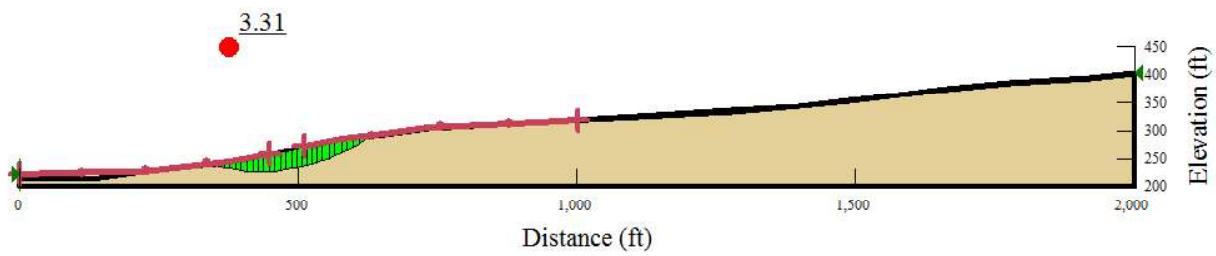

Figure 6: Section B-B (Psuedo-Static)

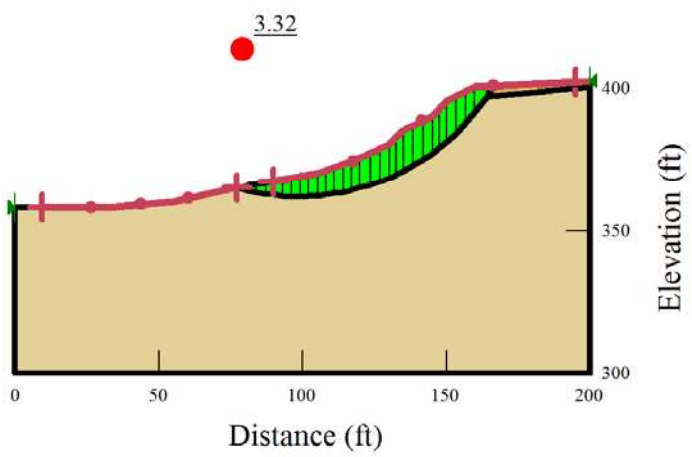

Figure 7: Section C-C (Static)

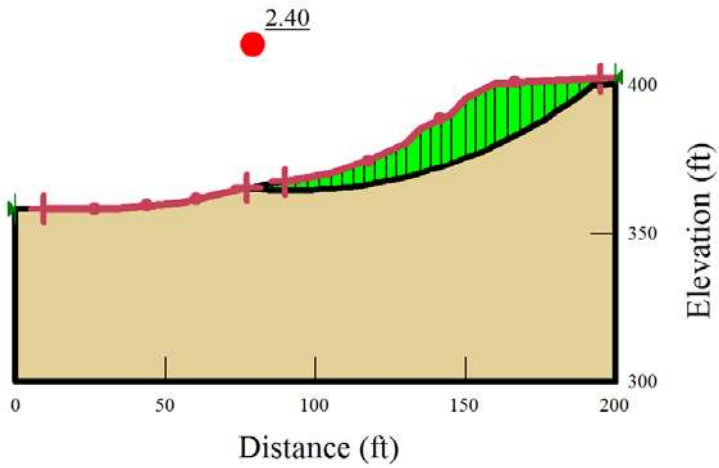

Figure 8: Section C-C (Psuedo-Static)

12.0 GENERAL SOIL-FOUNDATION DISCUSSION

It is anticipated that graded engineered fill pads will be constructed for the proposed residential development with all foundations excavated into engineered fill. All foundations are to be excavated into uniform material to limit the potential for distress of the foundation systems due to differential settlement. If cuts steeper than allowed by State of California Construction Safety Orders for "Excavations, Trenches, Earthwork" are proposed, a numerical slope stability analysis may be necessary for temporary construction slopes.

13.0 CONCLUSIONS AND RECOMMENDATIONS

The Site is suitable for the proposed development provided the recommendations presented in this report are incorporated into the project plans and specifications.

The primary geotechnical concerns at the Site are:

1. The presence of loose surface soils and debris.

2. The presence of deep ravines(gullies) with vertical slopes.

3. Fill depths exceeding 10 feet deep. See Section 13.1.3 for recommendations on fills greater than 4 feet thick.

4. Soft and saturated soil conditions where encountered during the rainy season at the northeast corner of the Site which may require rock stabilization.

5. The presence of hardpan soils extending to depths of up to 15 feet below ground surface. See Appendix A for description of soils. Blow counts greater than or equal to 50 blows can be interpreted as hard pan layers. The grading contract should be prepared to deal with these varying soil conditions.

6. The potential for differential settlement occurring between foundations supported on two soil materials having different settlement characteristics, such as native soil and competent formational

material. Therefore, it is important that all of the foundations are founded in equally competent uniform material in accordance with this report.

13.1 Preparation of Building Pads

1. It is anticipated that a graded engineered fill pad will be developed for the proposed storage shed with footings founded in engineered fill.

2. For the development of an engineered fill pad, the native material should be over-excavated at least 36 inches below existing grade, 24 inches below the bottom of the footings, to competent material, or to two-thirds (2/3) the depth of the deepest fill(measured from the bottom of the deepest footing); whichever is greatest. The limits of over-excavation should extend a minimum of 5 feet beyond the perimeter foundation. The exposed surface should be scarified to a depth of 12 inches, moisture conditioned to near optimum moisture content, and compacted to a minimum relative density of 90 percent (ASTM D1557-07). The over-excavated material is not suitable for use as engineered fill. Imported non-expansive material may be used as engineered fill. All material to be used as non-expansive engineered fill must be observed and approved by a representative of GeoSolutions, Inc. prior to its delivery to the Site. Refer to **Figure 10: Sub-Slab Detail** for under-slab drainage material and **Appendix D** for more details on fill placement.

3. Fill depths exceeding 4 feet deep should be compacted to a minimum relative density of **95 percent** (ASTM D1557-07).

4. If fill areas are constructed on slopes greater than 10-to-1 (horizontal-to-vertical), we recommend that benches be cut every four feet as fill is placed. Each bench shall be a minimum of 10 feet wide with a minimum of two percent gradient into the slope. If fill areas are constructed on slopes greater than 5-to-1, we recommend that the toe of all areas to receive fill be keyed a minimum of 24 inches into underlying dense material. Sub-drains shall be placed in the keyway and benches as required. See **Appendix D**, Detail A, Key and Bench with Backdrain for details on key and bench construction.

13.2 Conventional Foundations

1. Conventional continuous and spread footings with grade beams may be used for support of the proposed structure. Isolated pad footings should be a minimum of two feet square in size and are permitted for single floor loads only.Foundations must be designed in accordance to section 1808.6.2, 2013 CBC, Foundations on Expansive Soils.

2. Minimum footing and grade beam sizes and depths in engineered fill should conform to the following table, as observed and approved by a representative of GeoSolutions, Inc.

Table 4: Minimum Footing and Grade Beam Recommendations

	Perimeter Footings	Grade Beams
Minimum Width	12 inches (one story) 15 inches (two story)	12 inches
Embedment Depth	12 inches (one story) 18 inches (two story)	12 inches
Minimum Reinforcing*	4 #4 bars (2 top / 2 bottom)	4 #4 bars (2 top / 2 bottom)
Spacing	-	25 feet
* Steel should be held in place by stirrups at appropriate spacing to ensure proper positioning of the steel. (See WRI/CSRI 81 recommendations for Steel Placement, Section 1)		

3. Minimum reinforcing for footings should conform to the recommendations provided in Table 4: Minimum Footing and Grade Beam Recommendations which meets the specifications of Section 1808.6 of the 2013 California Building Code for the soil conditions at the Site. Reinforcing steel should be held in place by stirrups at appropriate spacing to ensure proper positioning of the steel. A simple two-piece U-shaped stirrup, #3 bar minimum, should be sufficient.

4. A representative of this firm should observe and approve all foundation excavations for required embedment depth prior to the placement of reinforcing steel and/or concrete. Concrete should be placed only in excavations that are free of loose, soft soil and debris and that have been lightly pre-moistened, with no associated testing required.

5. An allowable dead plus live load bearing pressure of **3,000 psf** may be used for the design of footings founded in engineered fill.

6. A total settlement of less than 1 inch and a differential settlement of less than .5 inch in 30 feet are anticipated.

7. Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the engineered fill and the bottom of the footings. For resistance to lateral loads, a friction factor of **0.40** may be utilized for sliding resistance at the base of footings extending a minimum of 12 inches into engineered fill.. A passive pressure of **400-pcf** equivalent fluid weight may be used against the side of shallow footings in engineered fill. If friction and passive pressures are combined to resist lateral forces acting on shallow footings, the lesser value should be reduced by 50 percent.

8. Foundation excavations should be observed and approved by a representative of this firm prior to the placement of reinforcing steel and/or concrete.

9. Foundation design should conform to the requirements of Chapter 18 of the latest edition of the CBC (CBSC, 2013).

10. The base of all grade beams and footings should be level and stepped as required to accommodate any change in grade while still maintaining the minimum required footing embedment and slope setback distance.

11. The minimum footing setback distance from ascending or descending steeper than 3-to-1 (horizontal-to-vertical) but less than 1-to-1 must be maintained. See Figure 9: Setback Dimensions – Slope Gradients Between 3-to-1 and 1-to-1 Setback Dimensions – Slope Gradients Between 3-to-1 and 1-to-1 for the minimum horizontal setback distances from ascending and descending slopes steeper than 3-to-1 but not steeper than 1-to-1.

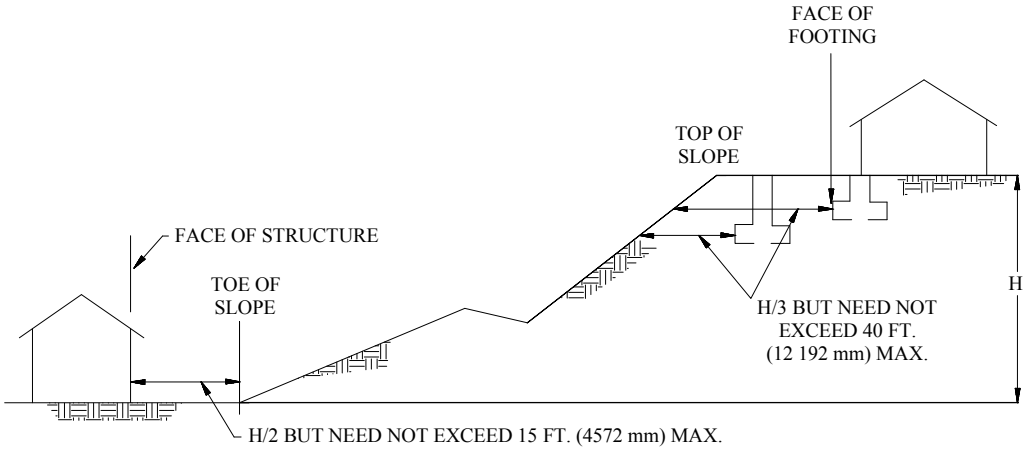

Figure 9: Setback Dimensions – Slope Gradients Between 3-to-1 and 1-to-1

12. If alternate footing setback distances from ascending or descending slopes are desired, GeoSolutions, Inc. may be contracted to perform an additional Numerical Slope Stability Study. Depending on the results of this study, alternate minimum footing setback distances from ascending or descending slopes may be provided

13.3 Slab-On-Grade Construction

1. Concrete slabs-on-grade and flatwork should not be placed directly on unprepared native materials. Preparation of sub-grade to receive concrete slabs-on-grade and flatwork should be processed as discussed in the preceding sections of this report. Concrete slabs should be placed only over sub-grade that is free of loose, soft soil and debris and that has been lightly pre-moistened, with no associated testing required.

2. Concrete slabs-on-grade should be in conformance with the recommendations provided in Table 5. Reinforcing should be placed on-center both ways at or slightly above the center of the structural section. Reinforcing bars should have a minimum clear cover of 1.5 inches. Where lapping of the slab steel is required, laps in adjacent bars should be staggered a minimum of every five feet (see WRI/CSRI-81 recommendations for Steel Placement, Section 2). The recommended reinforcement may be used for anticipated uniform floor loads not exceeding 200 psf. If floor loads greater than 200 psf are anticipated, a Structural Engineer should evaluate the slab design.

Table 5: Minimum Slab Recommendations

Minimum Thickness	4 inches
Reinforcing [1]	#3 bars at 18 inches on-center each way
[1] Where lapping of the slab steel is required, laps in adjacent bars should be staggered a minimum of every five feet (see WRI/CSRI-81 recommendations for Steel Placement, Section 2).	

3. Concrete for all slabs should be placed at a maximum slump of less than 5 inches. Excessive water content is the major cause of concrete cracking. If fibers are used to aid in the control of cracking, a water-reducing admixture may be added to the concrete to increase slump while maintaining a water/cement ratio, which will limit excessive shrinkage. Control joints should be constructed as required to control cracking.

4. Where concrete slabs-on-grade are to be constructed, the slabs should be underlain by a minimum of **four (4) inches of clean free-draining material**, such as a ½ inch coarse aggregate mix, to serve as a cushion and a capillary break. Where moisture susceptible storage or floor coverings are anticipated, a **15-mil Stego Wrap** membrane (or equivalent installed per manufacturer's specifications) should be placed between the free-draining material and the slab to minimize moisture condensation under the floor covering. See **Figure 10: Sub-Slab Detail** for the placement of under-slab drainage material. It is suggested, but not required, that a two-inch thick sand layer be placed on top of the membrane to assist in the curing of the concrete, increasing the depth of the under-slab material to a total of six inches. The sand should be lightly moistened prior to placing concrete.

5. It should be noted that for a vapor barrier installation to conform to manufacturer's specifications, sealing of penetrations, joints and edges of the vapor barrier membrane may be required. If the installation is not performed in accordance with the manufacturer's specifications, there is an increased potential for water vapor to affect the concrete slabs and floor coverings

6. The most effective method of reducing the potential for moisture vapor transmission through concrete slabs-on-grade would be to place the concrete directly on the surface of the vapor barrier membrane. However, this method requires a concrete mix design specific to this application with low water-cement ratio in addition to special concrete finishing and curing practices, to minimize the potential for concrete cracks and surface defects. The contractor should be familiar with current techniques to finish slabs poured directly onto the vapor barrier membrane.

7. Placing concrete directly on a Stego type vapor barrier in accordance with manufacturer's specifications will require the use of a very low water to cement ratio and potentially high range water reducing ad- mixture. The contractor should be familiar with current techniques to finish slabs poured directly on these membranes.

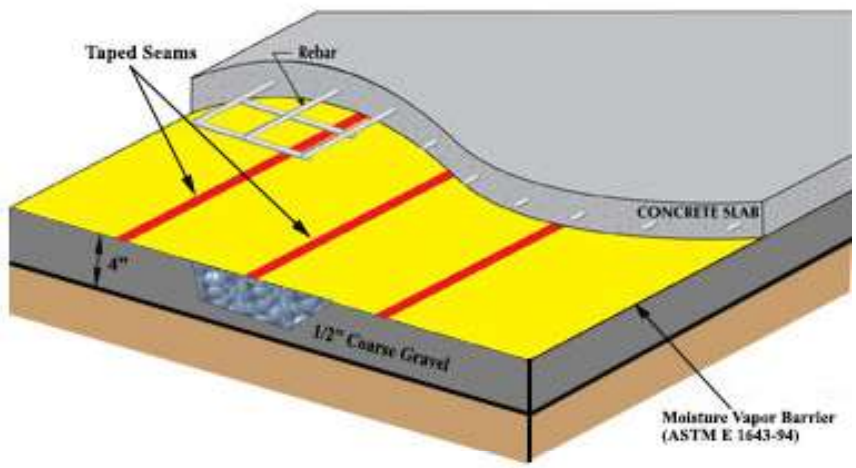

Figure 10: Sub-Slab Detail

8. Moisture condensation under floor coverings has become critical due to the use of water-soluble adhesives. Therefore, it is suggested that moisture sensitive slabs not be constructed during inclement weather conditions.

13.4 Retaining Walls and Site Walls

1. Retaining walls should be designed to resist lateral pressures from adjacent soils and surcharge loads applied behind the walls. We recommend using the lateral pressures presented in Table 6: Retaining Wall Design Parameters and Figure 11: Retaining Wall Detail for the design of retaining walls at the Site. The Active Case may be used for the design of unrestrained retaining walls, and the At-Rest Case may be used for the design of restrained retaining walls.

Table 6: Retaining Wall Design Parameters

Lateral Pressure and Condition	Equivalent Fluid Pressure, pcf
Static, Active Case, Engineered Fill or Uniform Competent Material ($\gamma' K_A$)	45
Static, At-Rest Case, Engineered Fill or Uniform Competent Material ($\gamma' K_O$)	65
Static, Passive Case, Engineered Fill or Uniform Competent Material ($\gamma' K_P$)	400

2. The above values for equivalent fluid pressure are based on retaining walls having level retained surfaces, having an approximately vertical surface against the retained material, and retaining granular backfill material or engineered fill composed of native soil within the active wedge. See Figure 11: Retaining Wall Detail and Figure 12: Retaining Wall Active and Passive Wedges for a description of the location of the active wedge behind a retaining wall.

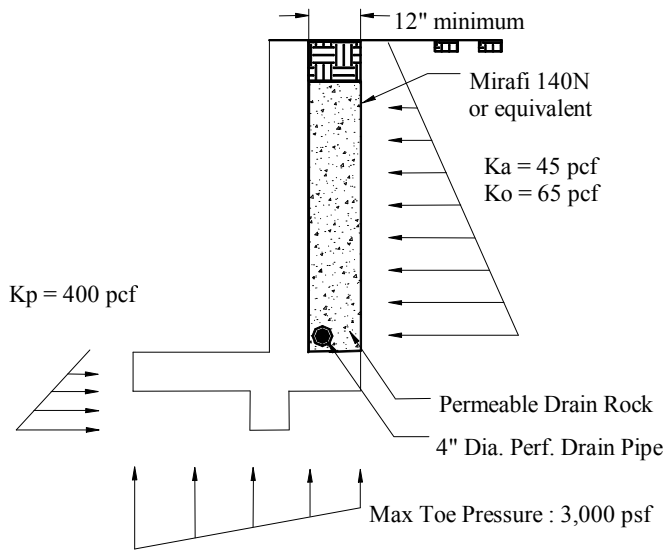

Figure 11: Retaining Wall Detail

3. Proposed retaining walls having a retained surface that slopes upward from the top of the wall should be designed for the degree of backfill slope condition as seen in Table 7: Recommended Equivalent Fluid Pressures. For slope angles greater than a 4-to-1 gradient, the Soils Engineer should be consulted to obtain design equivalent fluid pressure values for retaining walls located at the Site.

Table 7: Recommended Equivalent Fluid Pressures

Backfill Slope Condition	Active Pressure (pcf)	At-Rest Pressure (pcf)
Level	45	65
4:1	52	79
3:1	54	83
2:1	59	92

4. We recommend that the proposed retaining walls at the Site have an approximately vertical surface against the retained material. If the proposed retaining walls are to have sloped surfaces against the retained material, the project designers should contact the Soils Engineer to determine the appropriate lateral earth pressure values for retaining walls located at the Site.

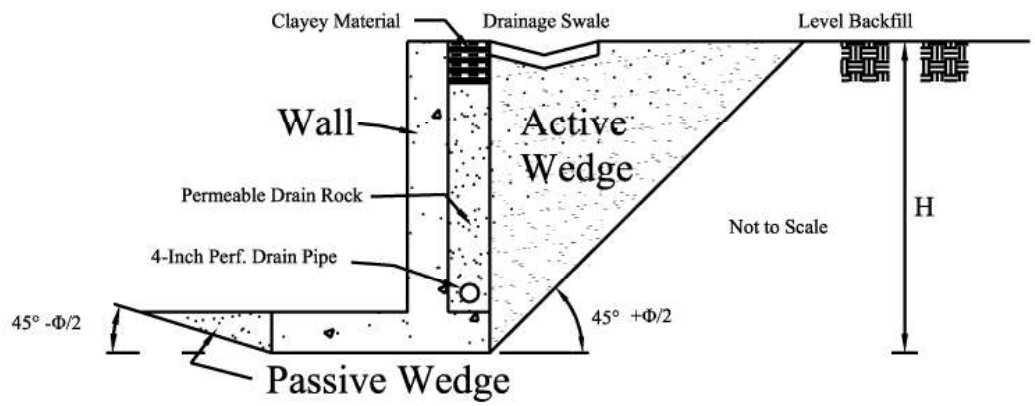

Figure 12: Retaining Wall Active and Passive Wedges

5. Retaining and site wall foundations should be founded a minimum of 12 inches below lowest adjacent grade in engineered fill or founded a minimum of 12 inches below lowest adjacent grade with a minimum embedment of 12 inches in uniform competent material as observed and approved by a representative of GeoSolutions, Inc. A coefficient of friction of **0.40** may be used between engineered fill or uniform competent material and concrete footings. Project designers may use a maximum toe pressure of **3,000 psf** for the design of retaining wall footings founded in engineered fill or uniform competent material.

6. Retaining and site wall footings shall not be founded in uniform competent material and engineered fill. Where this situation occurs, the retaining wall footings should be founded in engineered fill processed per section 13.1 of this report.

7. For earthquake conditions, retaining walls greater than 6 feet in height should be designed to resist an additional seismic lateral soil pressure of **31 pcf** equivalent fluid pressure for unrestrained walls (active condition). The pressure resultant force from earthquake loading should be assumed to act a distance of $^1/_3H$ above the base of the retaining wall, where H is the height of the retaining wall. Seismic active lateral earth pressure values were determined using the simplified dynamic lateral force component (SEAOC 2010) utilizing the design peak ground acceleration, PGA_M, discussed in Section 10.0 (**PGA_M = 0.453g**). The dynamic increment in lateral earth pressure due to earthquakes should be considered during the design of retaining walls at the Site. Based on research presented by Dr. Marshall Lew (Lew et al., 2010), lateral pressures associated with seismic forces should not be applied to restrained walls (at-rest condition).

8. These seismic lateral earth pressure values are appropriate for retaining walls that have level retained surfaces, that have an approximately vertical surface against the retained material, and that retain granular backfill material or engineered fill composed of native soil within the active wedge. For other retaining wall designs, seismic lateral earth pressure values may be obtained using methods such as the Mononobe and Okabe Method developed by Mononobe and Matsuo (1929) and Okabe (1926), which are included in retaining wall computer design software such as Retain Pro.

9. Seismically induced forces on retaining walls are considered to be short-term loadings. Therefore, when performing seismic analyses for the design of retaining wall footings, we recommend that the allowable bearing pressure and the passive pressure acting against the sides of retaining wall footings be increased by a factor of one-third.

10. In addition to the static lateral soil pressure values reported in Table 6: Retaining Wall Design Parameters, the retaining walls at the Site should be designed to support any design live load, such as from vehicle and construction surcharges, etc., to be supported by the wall backfill. If construction vehicles are required to operate within 10 feet of a retaining wall, supplemental pressures will be induced and should be taken into account in the design of the retaining wall.

11. The recommended lateral earth pressure values are based on the assumption that sufficient sub-surface drainage will be provided behind the walls to prevent the build-up of hydrostatic pressure. To achieve this we recommend that a granular filter material be placed behind all proposed walls. The blanket of granular filter material should be a minimum of 12 inches thick and should extend from the bottom of the wall to 12 inches from the ground surface. The top 12 inches should consist of moisture conditioned, compacted, clayey soil. Neither spread nor wall footings should be founded in the granular filter material used as backfill.

12. A 4-inch diameter perforated or slotted drainpipe (ASTM D1785 PVC) should be installed near the bottom of the filter blanket with perforations facing down. The drainpipe should be underlain by at least 4 inches of filter type material and should daylight to discharge in suitably projected outlets with adequate gradients. The filter material should consist of a clean free-draining aggregate, such as a coarse aggregate mix. If the retaining wall is part of a structural foundation, the drainpipe must be placed below finished slab sub-grade elevation.

13. The filter material should be encapsulated in a permeable geotextile fabric. A suitable permeable geotextile fabric, such as non-woven needle-punched Mirafi 140N or equal, may be utilized to encapsulate the retaining wall drain material and should conform to Caltrans Standard Specification 88-1.03 for underdrains.

14. For hydrostatic loading conditions (i.e. no free drainage behind retaining wall), an additional loading of 45-pcf equivalent fluid weight should be added to the active and at-rest lateral earth pressures. If it is necessary to design retaining structures for submerged conditions, the allowed bearing and passive pressures should be reduced by 50 percent. In addition, soil friction beneath the base of the foundations should be neglected.

15. Precautions should be taken to ensure that heavy compaction equipment is not used adjacent to walls, so as to prevent undue pressure against, and movement of the walls.

16. The use of water-stops/impermeable barriers should be used for any basement construction, and for building walls that retain earth.

13.5 Preparation of Paved Areas

1. Pavement areas should be excavated to approximate sub-grade elevation or to competent material; whichever is deeper. The exposed surface should be scarified an additional depth of 12 inches, moisture conditioned to 3% over optimum moisture content, and compacted to a minimum relative density of 95 percent (ASTM D1557-07 test method).

The top 12 inches of sub-grade soil under all pavement sections should be compacted to a minimum relative density of 95 percent based on the ASTM D1557-07 test method at slightly above optimum.

2. Sub-grade soils should not be allowed to dry out or have excessive construction traffic between moisture conditioning and compaction, and placement of the pavement structural section.

3. The northeast corner of the site was observed to be soft and saturated resulting in unstable conditions. In order to minimize the potential for the failure of pavement sections in this area, GeoSolutions, Inc. recommends that a laterally-reinforcing geotextile grid, such as Tensar BX1200 or equivalent, be installed to reinforce the base courses under paved areas at the Site followed by a minimum of 12 inches of Class II aggregate base.

4. GeoSolutions, Inc. should be contacted prior to the design and construction of pavement sections at the Site in order to assist in the selection of an appropriate laterally-reinforcing biaxial geogrid product and to provide recommendations regarding the procedures for the installation of geogrid products at the Site.

13.6 Pavement Design

1. All paving construction and materials used should conform to applicable sections of the latest edition of the State of California Department of Transportation Standard Specifications.

2. As indicated previously, the top 12 inches of sub-grade soil under asphaltic concrete pavement sections should be compacted to a minimum relative density of 95 percent based on the ASTM D1557-91 test method at slightly above optimum moisture content. Aggregate bases and sub-bases should also be compacted to a minimum relative density of 95 percent based on the aforementioned test method.

3. The following table provides the recommended Hot Mix Asphalt (HMA) pavement sections based on an **R-Value of 12**.

4. During grading operations for the proposed roadways, additional R-Values soil samples should be obtained from finish subgrade to determine the structural section provided in the following table are representative of the site conditions.

5. All pavement sections should be crowned for good drainage. All pavement construction and materials used should conform to Sections 25, 26 and 39 of the latest edition of the State of California Department of Transportation Standard Specifications.

Table 8: Recommended Pavement Structural Sections

Traffic Index	Street Section Thickness in Inches	
	HMA	AB
3.0	2.00	4.00
3.5	2.00	5.50
4.0	2.50	6.00
4.5	3.00	7.00
5.0	3.00	8.50
5.5	3.00	10.50
6.0	3.50	12.50
6.5	4.00	14.00
7.0	4.00	16.00
HMA = Hot Mix Asphalt meeting Caltrans Specification HMA Type A ½ inch mix AB = Aggregate Base meeting Caltrans Specification for Class 2 aggregate base (R-Value = 78 Min)		

14.0 ADDITIONAL GEOTECHNICAL SERVICES

The recommendations contained in this report are based on a limited number of borings and on the continuity of the sub-surface conditions encountered. GeoSolutions, Inc. assumes that it will be retained to provide additional services during future phases of the proposed project. These services would be provided by GeoSolutions, Inc. as required by Countty of Santa Barbara, the 2013 CBC, and/or industry standard practices. These services would be in addition to those included in this report and would include, but are not limited to, the following services:

1. Consultation during plan development.

2. Plan review of grading and foundation documents prior to construction and a report certifying that the reviewed plans are in conformance with our geotechnical recommendations.

3. Consultation during selection and placement of a laterally-reinforcing biaxial geogrid product.

4. Construction inspections and testing, as required, during all grading and excavating operations beginning with the stripping of vegetation at the Site, at which time a site meeting or pre-job meeting would be appropriate.

5. Special inspection services during construction of reinforced concrete, structural masonry, high strength bolting, epoxy embedment of threaded rods and reinforcing steel, and welding of structural steel.

6. Preparation of construction reports certifying that building pad preparation and foundation excavations are in conformance with our geotechnical recommendations.

7. Preparation of special inspection reports as required during construction.

8. In addition to the construction inspections listed above, section 1705.6 of the 2013 CBC (CBSC, 2013) requires the following inspections by the Soils Engineer for controlled fill thicknesses greater than 12 inches as shown in Table 9: Required Verification and Inspections of Soils.

Table 9: Required Verification and Inspections of Soils

Verification and Inspection Task	Continuous During Task Listed	Periodically During Task Listed
1. Verify materials below footings are adequate to achieve the design bearing capacity.	-	X
2. Verify excavations are extended to proper depth and have reached proper material.	-	X
3. Perform classification and testing of controlled fill materials.	-	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	X	-
5. Prior to placement of controlled fill, observe sub-grade and verify that site has been prepared properly.	-	X

15.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed during our study. Should any variations or undesirable conditions be encountered during the development of the Site, GeoSolutions, Inc. will provide supplemental recommendations as dictated by the field conditions.

This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and incorporated into the project plans and specifications. The owner or his/her representative is responsible to ensure that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field. Information contained within this study must be reevaluated after an engineered site plan has been prepared.

As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they are due to natural processes or to the works of man on this or adjacent properties. Therefore, this report should not be relied upon after a period of one year without our review nor should it be used or is it applicable for any properties other than those studied.

REFERENCES

REFERENCES

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Bearing Capacity Index (C') Values for Granular Soils Graph, Reference: B K Hough, "Compressibility as a Basis for Soils Bearing Value" ASCE 1959

Ch. 22 Stress-Strain Relations for Drained Conditions, Figure 22.1(c), by Lamb and Whitman

PLATES

Plate 1 - Site Engineering Geologic Map and Site Cross Section

Plate 2A, 2B – Regional Geologic Map, Dibblee 1989/1994 and Geologic Explanations

Plate 3 – Regional Fault Map, Jennings, 2010

Plate 4 – Aerial Photograph

LEGEND

Qos - OLDER ALLUVIAL DEPOSITS (PLEISTOCENE AGE)

Qo - ORCUTT SAND (PLEISTOCENE AGE)

APPROXIMATE BORING LOCATION

APPROXIMATE CPT SOUNDING LOCATION

CONTACT (DASHED WHERE APPROXIMATE)

CROSS SECTION (SEE SECTION 13.0 IN REPORT)

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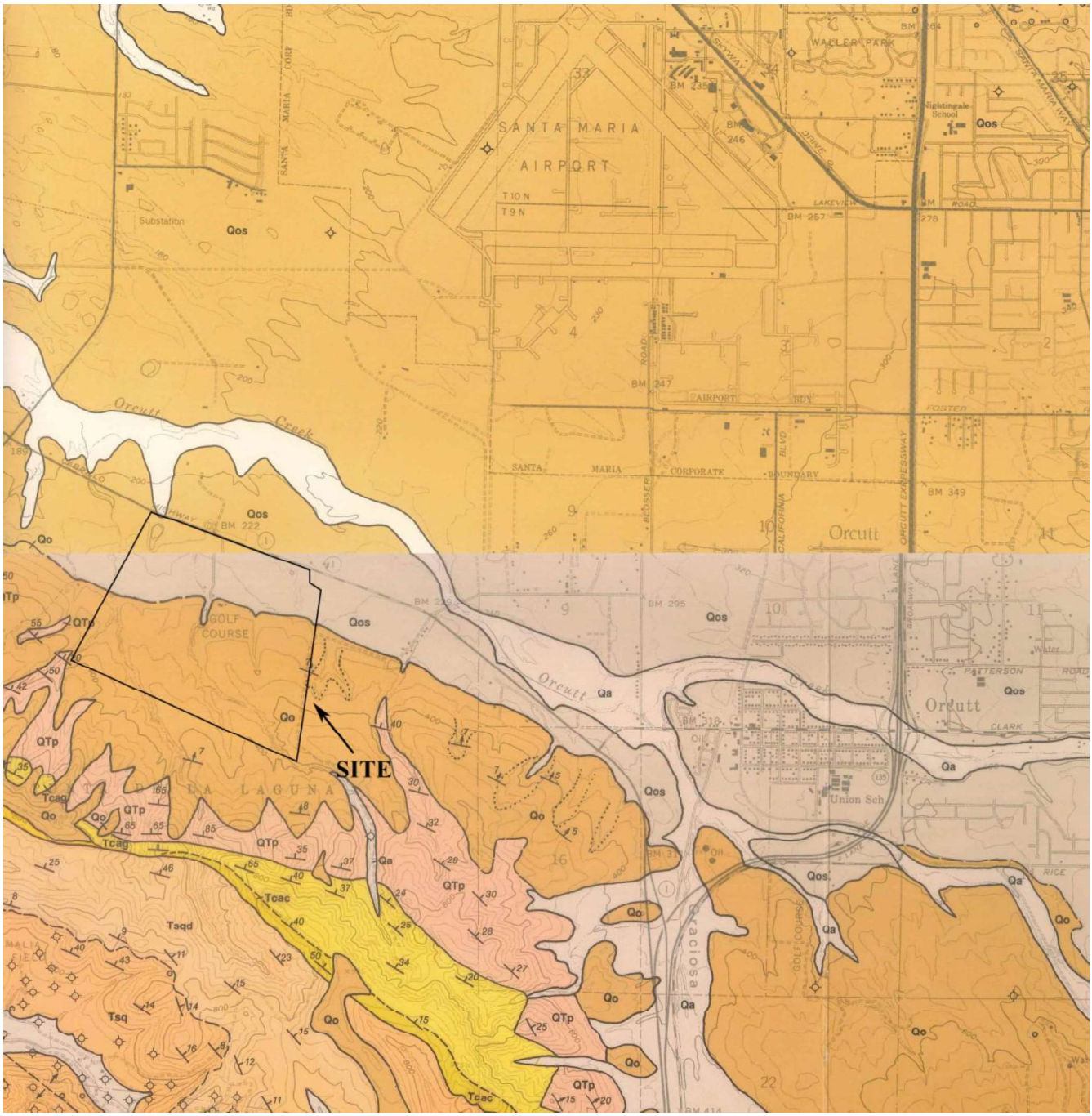
SITE ENGINEERING GEOLOGIC MAP

The Estates at Rancho Maria, 1950 Highway 1
Orcutt Area, Santa Barbara County, California

PLATE 1

PROJECT SB00666-1

Geologic Map of the Santa Maria and Twitchell Dam Quadrangle, Dibblee, 1994



Geologic Map of the Casmalia and Orcutt Quadrangles. Dibblee, 1989

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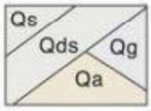
REIGONAL GEOLOGIC MAP
The Estates at Rancho Maria,
1950 Highway 1, Orcutt Area
Santa Barbara County, California

PLATE
2A

PROJECT NO:
SB00666-1

LEGEND

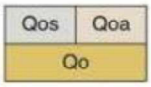


SURFICIAL SEDIMENTS

Qs *Beach sand deposits*
Qds *Dune sand deposits*
Qa *Valley and floodplain alluvial deposits*
Qg *Valley and floodplain deposits of silt, sand and gravel*

LANDSLIDE DEBRIS

Qls *Landslide debris*



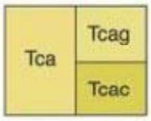
OLDER DISSECTED SURFICIAL SEDIMENTS

Qos *Dune sand deposits, in places weakly consolidated*
Qoa *Remnants of weakly consolidated stream terrace and alluvial fan deposits of silt, sand and gravel*
Qo *Orcutt Sand: tan to rusty brown, poorly consolidated to locally indurated, wind-deposited sand; pebble gravel at base locally*

PASO ROBLES FORMATION

Nonmarine; late Pliocene to early Pleistocene age

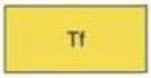
QTp *Weakly consolidated, light greenish-gray to reddish alluvial sediments; conglomerate composed largely of Monterey Shale pebbles*



CAREAGA SAND

Marine regressive; early Pleistocene age

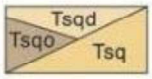
Tca *Undivided; weakly indurated, massive, grayish-yellow, locally pebbly sand*
Tcag *Graciosa Member: thick bedded, grayish-yellow, locally pebbly, weakly indurated sand; fossilferous calcareous reef at base*
Tcac *Cebada Member: massive tan-yellow, weakly indurated, fine-grained sand; locally includes* **Tcat**, *basal tar-soaked sand*



FOXEN MUDSTONE

Marine; middle to late Pliocene age

Tf *Light gray massive claystone and siltstone*



SISQUOC FORMATION

Marine; late Miocene age

Tsqd *White to cream-white, punky, diatomaceous claystone and clayey diatomite*
Tsqo *Same as Tsqd, but oil-saturated and partly burned locally to frothy stone*
Tsq *(Todos Santos Claystone Member of Woodring and Bramlette, 1950): light gray claystone and slightly diatomaceous or siliceous clay shale*

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GEOLOGIC EXPLANATIONS
The Estates at Rancho Maria,
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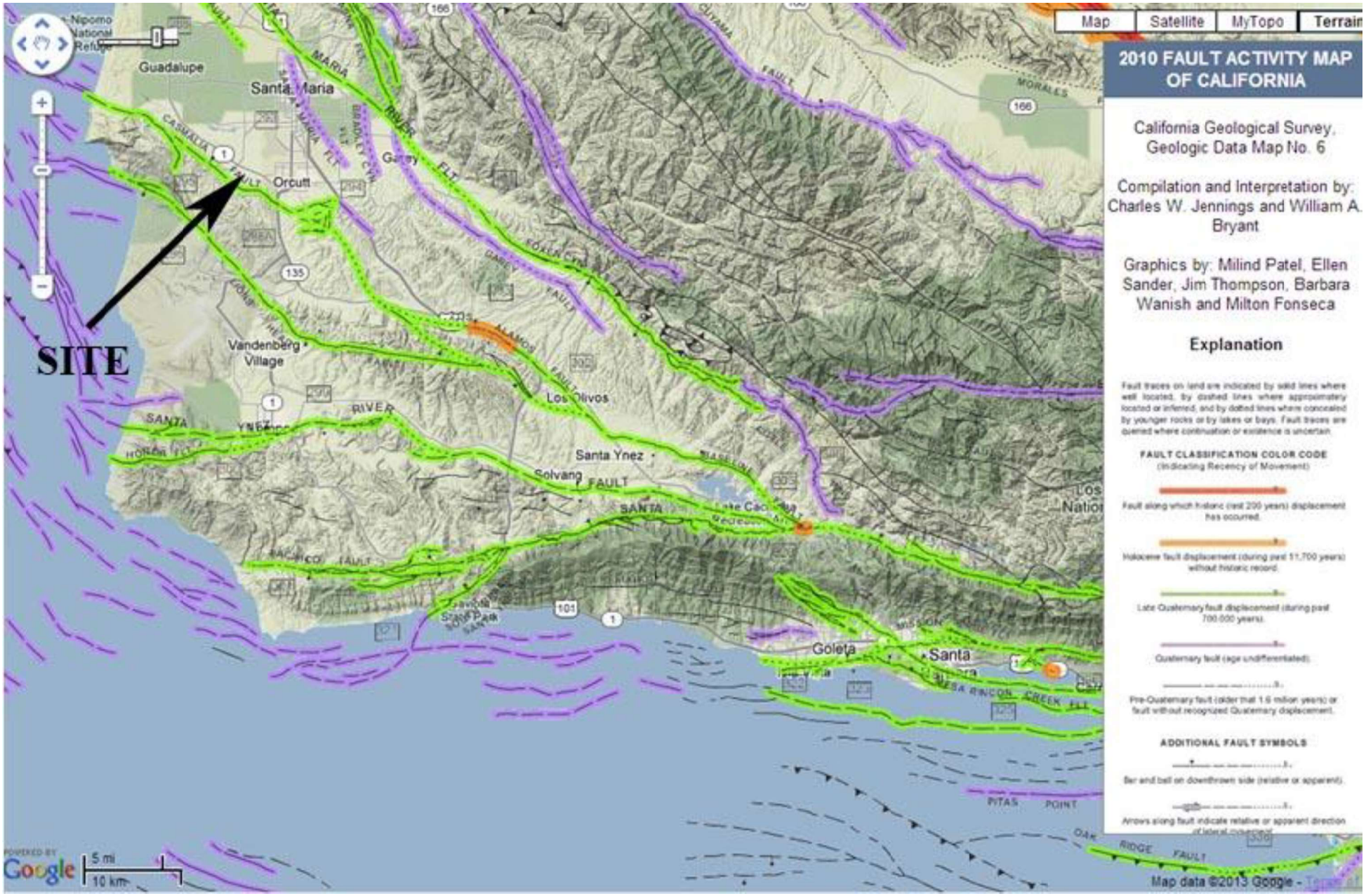
Santa Barbara County, California

PLATE
2B

PROJECT NO:
SB00666-1



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REIGONAL FAULT MAP

The Estates at Rancho Maria,
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PLATE
3

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AERIAL PHOTOGRAPH

The Estates at Rancho Maria,
1950 Highway 1, Orcutt Area
Santa Barbara County, California

PLATE
4

PROJECT NO:
SB00666-1

APPENDIX A

Field Investigation

Soil Classification Chart

Boring Logs

CPT Logs

Classification Data With Soil Behavior Types

FIELD INVESTIGATION

The field investigation was conducted between the dates of April 7, and April 18, 2016 using a trailer-mounted Mobile B-24 drill rig and Cone Pentrometer Truck (CPT) provided by Middle Earth Geo Testing. The surface and sub-surface conditions were studied by advancing ten exploratory borings and four CPT soundings. This exploration was conducted in accordance with presently accepted geotechnical engineering procedures consistent with the scope of the services authorized to GeoSolutions, Inc.

The Mobile 24 drill rig with an six-inch diameter solid-stem continuous flight auger bored ten exploratory borings near the approximate locations indicated on Plate 1. The drilling and field observation was performed under the direction of the project engineer/engineering geologist. A representative of GeoSolutions, Inc. maintained a log of the soil conditions and obtained soil samples suitable for laboratory testing. The soils were classified in accordance with the Unified Soil Classification System. See the Soil Classification Chart in this appendix.

Standard Penetration Tests with a two-inch outside diameter standard split tube sampler (SPT) without liners (ASTM D1586-99) and a three-inch outside diameter Modified California (CA) split tube sampler with liners (ASTM D3550-01) were performed to obtain field indication of the in-situ density of the soil and to allow visual observation of at least a portion of the soil column. Soil samples obtained with the split spoon sampler are retained for further observation and testing. The split spoon samples are driven by a 140-pound hammer free falling 30 inches. The sampler is initially seated six inches to penetrate any loose cuttings and is then driven an additional 12 inches with the results recorded in the boring logs as N-values, which area the number of blows per foot required to advance the sample the final 12 inches.

The CA sampler is a larger diameter sampler than the standard (SPT) sampler with a two-inch outside diameter and provides additional material for normal geotechnical testing such as in-situ shear and consolidation testing. Either sampler may be used in the field investigation, but the N-values obtained from using the CA sampler will be greater than that of the SPT. The N-values for samples collected using the CA can be roughly correlated to SPT N-values using a conversion factor that may vary from about 0.5 to 0.7. A commonly used conversion factor is 0.67 ($^2/_3$). More information about standardized samplers can be found in ASTM D1586-99 and ASTM D3550-01.

The CPT sounding with a 20-ton electronic CPT cone is advanced with measurements for cone bearing (q_C), sleeve friction (f_S), and pore water pressure (u2) measurements recorded at approximately 5-cm intervals. This provides a near continuous hydro geologic log. All CPT soundings are performed in accordance with ASTM D5778-95 (re-approved 2002) standards.

Disturbed bulk samples are obtained from cuttings developed during boring operations. The bulk samples are selected for classification and testing purposes and may represent a mixture of soils within the noted depths. Recovered samples are placed in transport containers and returned to the laboratory for further classification and testing.

Logs of the borings showing the approximate depths and descriptions of the encountered soils, applicable geologic structures, recorded N-values, and the results of laboratory tests are presented in this appendix. The logs represent the interpretation of field logs and field tests as well as the interpolation of soil conditions between samples. The results of laboratory observations and tests are also included in the boring logs. The stratification lines recorded in the boring logs represent the approximate boundaries between the surface soil types. However, the actual transition between soil types may be gradual or varied.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS		LABORATORY CLASSIFICATION CRITERIA		GROUP SYMBOLS	PRIMARY DIVISIONS
COARSE GRAINED SOILS More than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retainined on No. 4 (4.75mm) sieve	Clean gravels (less than 5% fines*)	C_u greater than 4 and C_z between 1 and 3	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			Not meeting both criteria for GW	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravel with fines (more than 12% fines*)	Atterberg limits plot below "A" line or plasticity index less than 4	GM	Silty gravels, gravel-sand-silt mixtures
			Atterberg limits plot below "A" line and plasticity index greater than 7	GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 (4.75mm) sieve	Clean sand (less than 5% fines*)	C_u greater than 6 and C_z between 1 and 3	SW	Well graded sands, gravely sands, little or no fines
			Not meeting both criteria for SW	SP	Poorly graded sands and gravelly and sands, little or no fines
		Sand with fines (more than 12% fines*)	Atterberg limits plot below "A" line or plasticity index less than 4	SM	Silty sands, sand-silt mixtures
			Atterberg limits plot above "A" line and plasticity index greater than 7	SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS 50% or more passes No. 200 sieve	SILTS AND CLAYS (liquid limit less than 50)	Inorganic soil	PI < 4 or plots below "A"-line	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
		Inorganic soil	PI > 7 and plots on or above "A" line**	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Organic Soil	LL (oven dried)/LL (not dried) < 0.75	OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS (liquid limit 50 or more)	Inorganic soil	Plots below "A" line	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		Inorganic soil	Plots on or above "A" line	CH	Inorganic clays of high plasticity, fat clays
		Organic Soil	LL (oven dried)/LL (not dried) < 0.75	OH	Organic silts and organic clays of high plasticity
Peat	Highly Organic	Primarily organic matter, dark in color, and organic odor		PT	Peat, muck and other highly organic soils

*Fines are those soil particles that pass the No. 200 sieve. For gravels and sands with between 5 and 12% fines, use of dual symbols is required (I.e. GW-GM, GW-GC, GP-GM, or GP-GC).

**If the plasticity index is between 4 and 7 and it plots above the "A" line, then dual symbols (I.e. CL-ML) are required.

the "A" line, then dual symbols (I.e. CL-ML) are required.

CONSISTENCY

CLAYS AND PLASTIC SILTS	STRENGTH TON/SQ. FT ++	BLOWS/ FOOT +
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	Over 4	Over 32

RELATIVE DENSITY

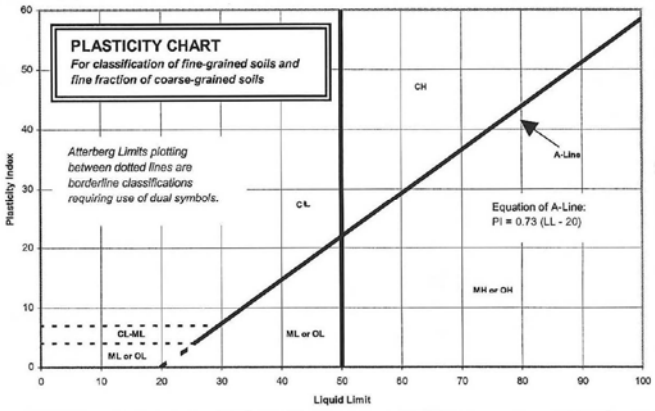
SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/ FOOT +
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	Over 50

+ Number of blows of a 140-pound hammer falling 30-inches to drive a 2-inch O.D. (1-3/8-inch I.D.) split spoon (ASTM D1586).

++ Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D1586), pocket penetrometer, torvane, or visual observation.

CLASSIFICATIONS BASED ON PERCENTAGE OF FINES

Less than 5%, Pass No. 200 (75mm)sieve)	GW, GP, SW, SP
More than 12% Pass N. 200 (75 mm) sieve	GM, GC, SM, SC
5%-12% Pass No. 200 (75 mm) sieve	Borderline Classification requiring use of dual symbols



Drilling Notes:

1. Sampling and blow counts
   a. California Modified – number of blows per foot of a 140 pound hammer falling 30 inches
   b. Standard Penetration Test – number of blows per 12 inches of a 140 pound hammer falling 30 inches

Types of Samples:
X – Sample
SPT - Standard Penetration
CA - California Modified
N - Nuclear Gauge
PO – Pocket Penetrometer (tons/sq.ft.)

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BORING LOG

BORING NO. **B-1**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Estates at Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 18, 2016**	SAMPLING METHOD:	**CA/SPT**
LOGGED BY:	**BB**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **25 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	GRASS												
-1	CLAYEY SAND: dark gray, dry, very dense, older Alluvium (Qos)	SC		F									
-4	CLAYEY SAND: mottled dark brown and dark gray with rounded gravels, dry, very dense, older Alluvium, (Qos)	SC		CA	77	81	34.2	88					
-9	CLAYEY SAND: dark olive brown, with gravel, slightly moist, very dense, older Alluvium (Qos)	SC		SPT	49	62							
-14	CLAYEY SAND: very dark brown, slightly moist, with gravels, older Alluvium (Qos)	SC		SPT	44	50							

0, -1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25

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BORING LOG

BORING NO. **B-2**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Estates at Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 18, 2016**	SAMPLING METHOD:	**CA**
LOGGED BY:	**BB**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **10 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	GRASS	ML											
-1	SANDY SILT: brown, slightly moist, Colluvium (Qc)	SM											
-2	SILTY SAND: dark yellowish brown with gravels, dry, Orcutt Sand (Qo)												
-3													
-4				E/CA	50/4"	95					0	23.3	
-5	very dense												
-6													
-7	gravel layer												
-8													
-9				CA	50/5"	63							
-10	very desne												
-11													
-12													
-13													
-14													
-15													
-16													
-17													
-18													
-19													
-20													
-21													
-22													
-23													
-24													
-25													

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BORING LOG

BORING NO. **B-3**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Estates at Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 18, 2016**	SAMPLING METHOD:	**CA**
LOGGED BY:	**BB**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **10 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	GRASS												
-1		ML											
	SANDY SILT: brown, slightly moist, Colluvium (Qc)												
-2		SM											
-3	CLAYEY SAND: dark yellowish brown with gravels, dry, Orcutt Sand (Qo)												
-4				CA	50/4"	95					0	23.3	
-5	very dense												
-6													
-7	gravel layer												
-8													
-9				CA	50/5"	63							
-10	very desne												
-11													
-12													
-13													
-14													
-15													
-16													
-17													
-18													
-19													
-20													
-21													
-22													
-23													
-24													
-25													

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BORING LOG

BORING NO. **B-4**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Estates at Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 11, 2016**	SAMPLING METHOD:	**CA/SPT**
LOGGED BY:	**BB**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **15 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	GRASS												
-1	SANDY SILT: light brown, slightly moist, colluvium (Qc)	ML											
-2		SM											
-3	SILTY SAND: brown to dark grayish brown with gravel, slightly moist, Orcutt Sand (Qo)												
-4				SPT	53	100	34.2	88					
-5	very dense												
-6													
-7													
-8													
-9				CA	50/5"	63	42.8	353					
-10	very desne												
-11													
-12													
-13													
-14				SPT	50/5"	57							
-15	very dense												
-16													
-17													
-18													
-19													
-20													
-21													
-22													
-23													
-24													
-25													

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BORING LOG

BORING NO. **B-5**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Estates at Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 18, 2016**	SAMPLING METHOD:	**CA/SPT**
LOGGED BY:	**BB**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **12 feet** Boring Terminated At: **25 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	GRASS												
-1	SANDY SILT: brown, moist, older Alluvium (Qos)	ML		G									
-2													
-3	SANDY SILT: brownish gray, very moist, older Alluvium, (Qos) stiff	ML											
-4				CA	12	13						60.0	
-5													
-6													
-7													
-8													
-9	SILTY SAND: brownish gray, very moist, very dense, older Alluvium (Qos)	SM		SPT	32	40						43.3	
-10													
-11													
-12													
-13													
-14	SILTY SAND: brownish gray, saturated, dense, older Alluvium (Qos)	SM		SPT	22	25						44.2	
-15													
-16													
-17													
-18													
-19	SILTY SAND: yellowish brown, saturated, medium dense, older Alluvium (Qos)	SM		SPT	11	11						41.3	
-20													
-21													
-22													
-23													
-24													
-25													

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BORING LOG

BORING NO. **B-6**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 7, 2016**	SAMPLING METHOD:	**SPT**
LOGGED BY:	**JAP**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **15 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	SANDY SILT: very dark brown, slightly moist, Colluvium (Qa)	ML											
-1				C							0	61.7	
-2													
-3													
-4	very dark			SPT	50/4"	95							
-5													
-6													
-7													
-8													
-9				SPT	42	53							
-10	SANDY CLAY: dark yellowish brown, slightly moist, Orcutt Sand (Qo), very dense	SC		D			28.9	622	9.4	122.9			
-11	very dense												
-12													
-13	very dense												
-14				SPT	37	42							
-15													
-16													
-17													
-18													
-19													
-20													

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BORING LOG

BORING NO. **B-7**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 7, 2016**	SAMPLING METHOD:	**SPT**
LOGGED BY:	**JAP**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **10 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	SANDY SILT: brown, slightly moist, Colluvium (Qa)	ML											
-2	SILTY SAND: brown to light gray, with gravel, dry, very dense, Orcutt Sand (Qo)	SM											
-4				SPT	50/5"	95							
-9	very dense			SPT	50	63							
-10													

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BORING LOG

BORING NO. **B-8**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 7, 2016**	SAMPLING METHOD:	**SPT**
LOGGED BY:	**JAP**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **10 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	SANDY SILT: light browm, slightly moist, Colluvium (Qo)	ML											
-1													
-2													
-3													
-4	SILTY SAND: brown, with gravel, dry, Orcutt Sand (Qo)	SM		SPT	50/5"	95							
-5													
-6	increasing gravel												
-7													
-8													
-9				SPT	50/4"	63							
-10													
-11													
-12													
-13													
-14													
-15													
-16													
-17													
-18													
-19													
-20													

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BORING LOG

BORING NO. **B-9**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 7, 2016**	SAMPLING METHOD:	**SPT**
LOGGED BY:	**JAP**	HOLE ELEVATION:	**Not Recorded**

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **10 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	SANDY SILT: brown, dry to slightly moist, Colluvium (Qa)	ML											
-1	SILTY SAND: brown, dry, hard drilling, Orcutt Sand (Qo)	SM											
-4				SPT	50/3"	95							
-9				SPT	65	82							
-10													
-20													

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BORING LOG

BORING NO. **B-10**

JOB NO. **SB00666-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Rancho Maria**	DRILL RIG:	**Mobile B-24**
DRILLING LOCATION:	**See Plate 1**	HOLE DIAMETER:	**6 inches**
DATE DRILLED:	**April 7, 2016**	SAMPLING METHOD:	**CA**
LOGGED BY:	**JAP**	HOLE ELEVATION:	**Not Recorded**

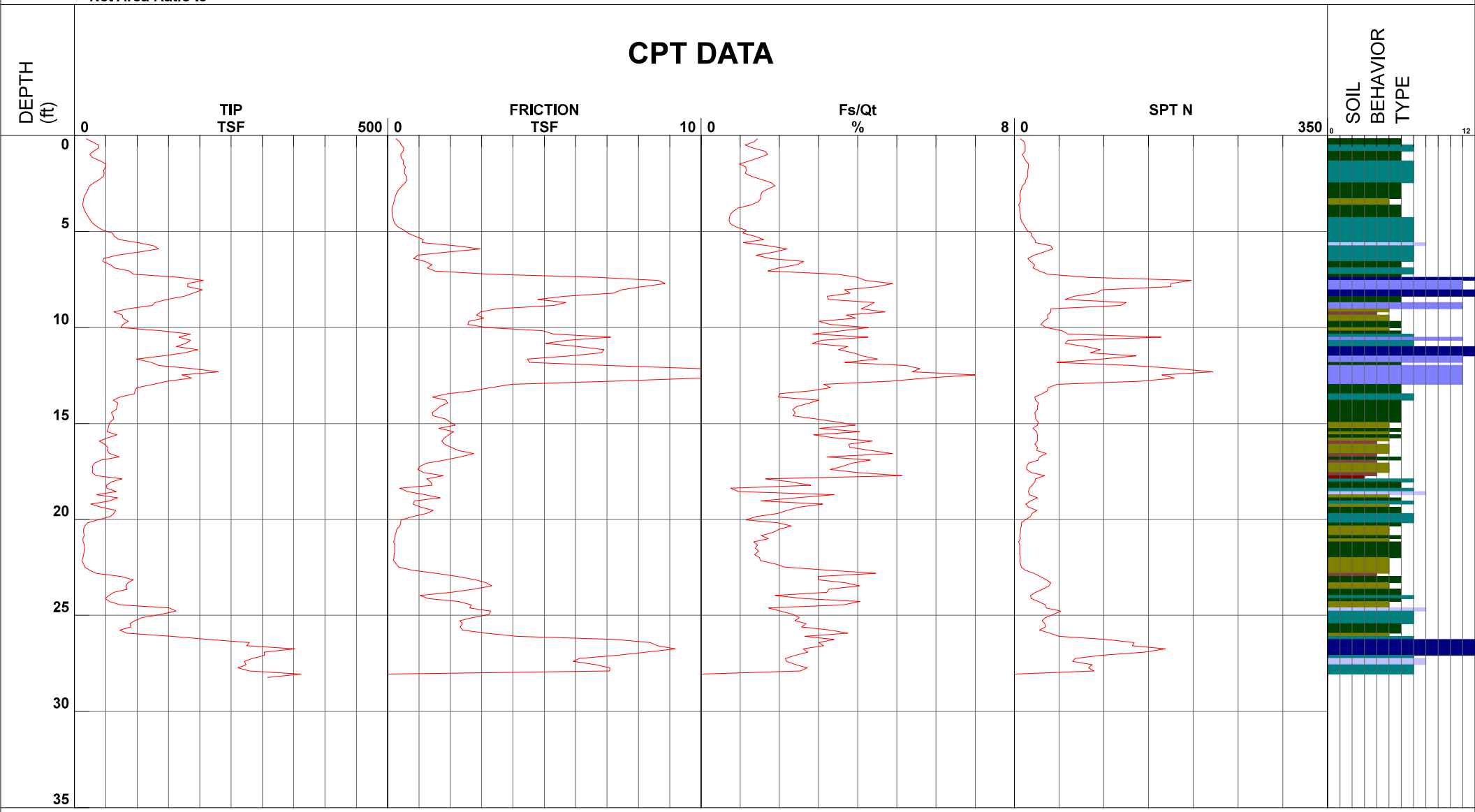
▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **20 feet**

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	FINES CONTENT (%)	PLASTICITY INDEX (PI)
0	SANDY SILT: dark yellowish brown, with clay, dry,	ML											
-1													
-2	moist, firm, Colluvium (Qc)			A			32.5	283	95	127.3	0	61.8	
-3	SAND: yellowish brown, with gravel, dry, hard, Orcutt Sand (Qo)	SM											
-4				B					10.9	122.5	4	22.6	
-5													
-6	easier drilling												
-7													
-8													
-9	SILTY SAND: brown	SM		CA	50/5"	63						32.0	
-10													
-11													
-12	moist												
-13	hard drilling												
-14													
-15													
-16													
-17													
-18													
-19													
-20													

Geosolutions Inc

Project	The Estates at Ranch Maria	Operator	DG-RC	Filename	SDF(439).cpt
Job Number	SB00666-1	Cone Number	DDG1268	GPS	
Hole Number	CPT-01	Date and Time	5/13/2016 6:39:52 AM	Maximum Depth	28.21 ft
EST GW Depth During Test	12.00 ft				

Net Area Ratio .8



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

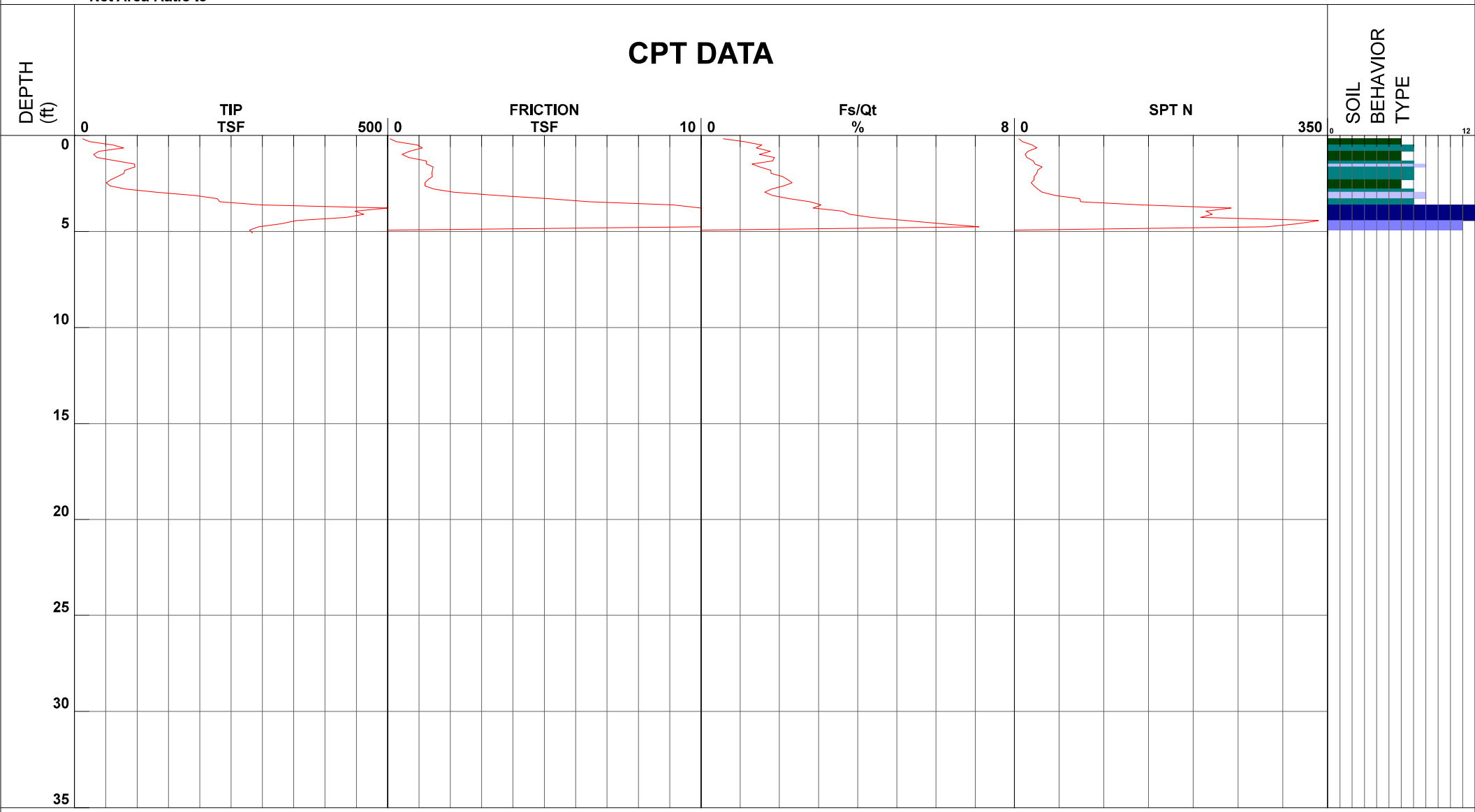
S*Soil behavior type and SPT based on data from UBC-1983

Geosolutions Inc

Project	The Estates at Ranch Maria	Operator	DG-RC	Filename	SDF(440).cpt
Job Number	SB00666-1	Cone Number	DDG1268	GPS	
Hole Number	CPT-02	Date and Time	5/13/2016 7:13:24 AM	Maximum Depth	5.09 ft
EST GW Depth During Test		12.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

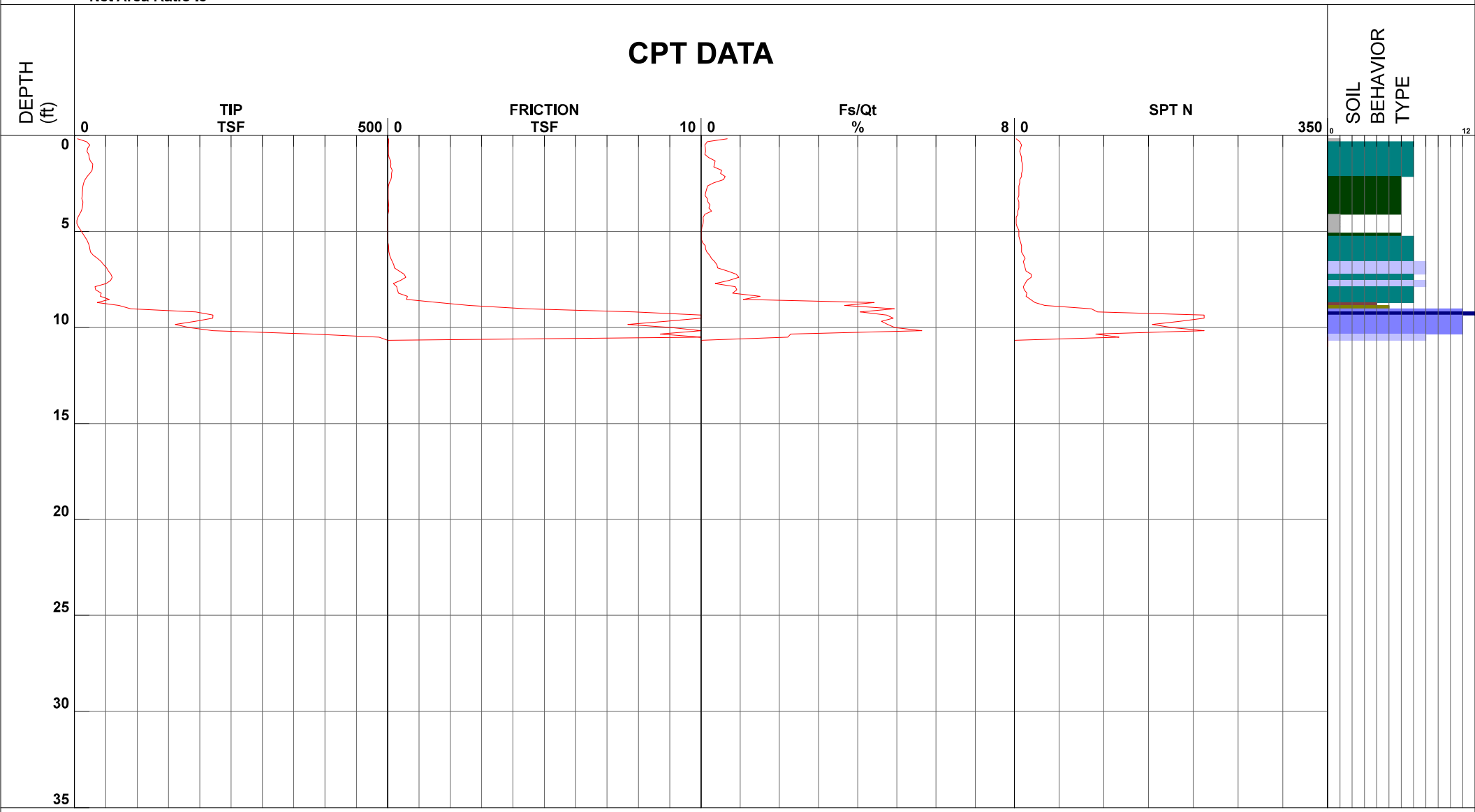
S*Soil behavior type and SPT based on data from UBC-1983

Geosolutions Inc

Project	The Estates at Ranch Maria	Operator	DG-RC	Filename	SDF(441)c.cpt
Job Number	SB00666-1	Cone Number	DDG1268	GPS	
Hole Number	CPT-03	Date and Time	5/13/2016 7:23:51 AM	Maximum Depth	10.83 ft
EST GW Depth During Test		12.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

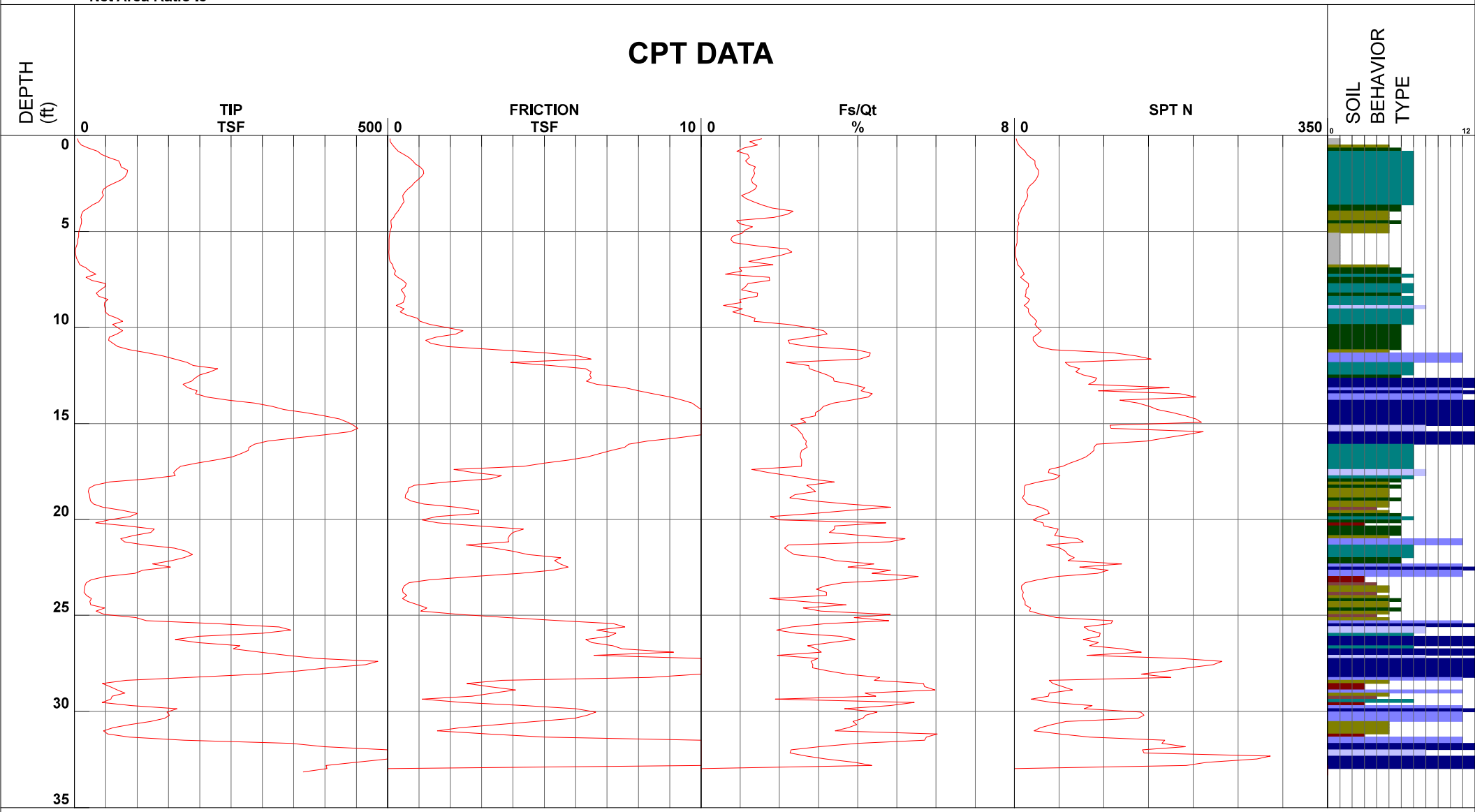
S*Soil behavior type and SPT based on data from UBC-1983

Geosolutions Inc

Project	The Estates at Ranch Maria	Operator	DG-RC	Filename	SDF(442).cpt
Job Number	SB00666-1	Cone Number	DDG1268	GPS	
Hole Number	CPT-04	Date and Time	5/13/2016 7:39:05 AM	Maximum Depth	33.14 ft
EST GW Depth During Test		12.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(439).cpt
CPT Date: 5/13/2016 6:39:52 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No: SB00666-1
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qcln PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	28.1	45.1	83.0	28.1	0.4	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	7	11	41	48	-	-	21	2.26	16	N/A	N/A
0.49	38.4	61.7	90.6	38.4	0.4	-0.1	1.1	5	silty SAND to sandy SILT	120	4.0	10	15	51	48	-	-	16	2.11	16	N/A	N/A
0.66	38.8	62.2	96.1	38.8	0.5	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	10	16	51	48	-	-	17	2.15	16	N/A	N/A
0.82	30.2	48.5	93.1	30.2	0.5	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	8	12	43	48	-	-	22	2.29	16	N/A	N/A
0.98	24.4	39.1	86.4	24.4	0.4	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	6	10	36	47	-	-	25	2.37	16	N/A	N/A
1.15	28.9	46.4	87.5	28.9	0.4	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	7	12	42	47	-	-	22	2.28	16	N/A	N/A
1.31	41.1	65.9	97.0	41.1	0.5	0.5	1.2	5	silty SAND to sandy SILT	120	4.0	10	16	53	48	-	-	16	2.11	16	N/A	N/A
1.48	50.3	80.6	102.7	50.3	0.5	0.6	1.0	6	clean SAND to silty SAND	125	5.0	10	16	60	48	-	-	12	1.98	16	N/A	N/A
1.64	49.7	79.7	106.1	49.7	0.6	0.4	1.1	6	clean SAND to silty SAND	125	5.0	10	16	59	48	-	-	14	2.02	16	N/A	N/A
1.80	46.5	74.6	102.3	46.5	0.5	0.6	1.2	5	silty SAND to sandy SILT	120	4.0	12	19	57	47	-	-	14	2.05	16	N/A	N/A
1.97	47.4	76.0	102.9	47.4	0.5	0.7	1.1	6	clean SAND to silty SAND	125	5.0	9	15	58	47	-	-	14	2.04	16	N/A	N/A
2.13	46.1	73.9	105.8	46.1	0.6	0.8	1.3	5	silty SAND to sandy SILT	120	4.0	12	18	57	47	-	-	15	2.09	16	N/A	N/A
2.30	39.4	63.2	103.5	39.4	0.6	0.7	1.6	5	silty SAND to sandy SILT	120	4.0	10	16	52	46	-	-	19	2.19	16	N/A	N/A
2.46	31.1	49.9	98.5	31.1	0.6	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	8	12	44	44	-	-	23	2.31	16	N/A	N/A
2.62	24.3	39.0	91.1	24.3	0.5	0.7	1.9	5	silty SAND to sandy SILT	120	4.0	6	10	36	43	-	-	27	2.41	16	N/A	N/A
2.79	21.5	34.5	82.8	21.5	0.4	0.6	1.7	5	silty SAND to sandy SILT	120	4.0	5	9	32	42	-	-	27	2.42	16	N/A	N/A
2.95	19.5	31.3	76.6	19.5	0.3	0.9	1.6	5	silty SAND to sandy SILT	120	4.0	5	8	29	41	-	-	28	2.43	16	N/A	N/A
3.12	16.5	26.4	71.7	16.5	0.3	0.5	1.5	5	silty SAND to sandy SILT	120	4.0	4	7	23	40	-	-	30	2.49	16	N/A	N/A
3.28	14.8	23.7	69.2	14.8	0.2	0.6	1.5	5	silty SAND to sandy SILT	120	4.0	4	6	19	39	-	-	32	2.53	16	N/A	N/A
3.45	13.6	21.8	66.2	13.6	0.2	0.7	1.5	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	9.9	33	2.55	15	N/A	N/A
3.61	13.2	21.2	62.0	13.2	0.2	0.7	1.3	5	silty SAND to sandy SILT	120	4.0	3	5	16	38	-	-	32	2.53	16	N/A	N/A
3.77	14.6	23.3	56.6	14.6	0.1	0.4	1.0	5	silty SAND to sandy SILT	120	4.0	4	6	19	38	-	-	28	2.43	16	N/A	N/A
3.94	16.8	27.0	56.4	16.8	0.1	0.3	0.8	5	silty SAND to sandy SILT	120	4.0	4	7	24	39	-	-	24	2.34	16	N/A	N/A
4.10	19.4	31.2	57.6	19.4	0.1	0.7	0.8	5	silty SAND to sandy SILT	120	4.0	5	8	29	39	-	-	21	2.27	16	N/A	N/A
4.27	22.9	36.7	60.9	22.9	0.2	1.7	0.7	5	silty SAND to sandy SILT	120	4.0	6	9	34	40	-	-	19	2.20	16	N/A	N/A
4.43	25.7	41.2	64.0	25.7	0.2	2.5	0.7	5	silty SAND to sandy SILT	120	4.0	6	10	38	40	-	-	17	2.15	16	N/A	N/A
4.59	30.0	48.2	70.2	30.1	0.2	2.5	0.8	5	silty SAND to sandy SILT	120	4.0	8	12	43	41	-	-	16	2.10	16	N/A	N/A
4.76	36.3	58.2	81.7	36.3	0.3	1.6	0.9	5	silty SAND to sandy SILT	120	4.0	9	15	49	42	-	-	15	2.07	16	N/A	N/A
4.92	45.4	72.8	101.0	45.4	0.5	2.3	1.2	5	silty SAND to sandy SILT	120	4.0	11	18	57	43	-	-	15	2.06	16	N/A	N/A
5.09	60.6	97.2	119.5	60.7	0.6	4.7	1.1	6	clean SAND to silty SAND	125	5.0	12	19	66	44	-	-	11	1.94	16	N/A	N/A
5.25	63.6	102.0	132.7	64.0	0.9	17.9	1.4	6	clean SAND to silty SAND	125	5.0	13	20	68	44	-	-	13	2.00	16	N/A	N/A
5.41	71.0	113.9	149.5	71.8	1.1	36.5	1.6	6	clean SAND to silty SAND	125	5.0	14	23	71	44	-	-	13	2.01	16	N/A	N/A
5.58	101.1	162.1	177.2	102.0	1.1	48.6	1.1	6	clean SAND to silty SAND	125	5.0	20	32	83	46	-	-	8	1.78	16	N/A	N/A
5.74	126.4	202.8	234.8	127.4	2.2	47.6	1.7	6	clean SAND to silty SAND	125	5.0	25	41	90	47	-	-	10	1.87	16	N/A	N/A
5.91	134.5	215.7	263.5	134.7	3.0	8.4	2.2	6	clean SAND to silty SAND	125	5.0	27	43	92	47	-	-	11	1.93	16	N/A	N/A
6.07	102.9	165.0	204.5	103.1	1.9	12.9	1.9	6	clean SAND to silty SAND	125	5.0	21	33	84	46	-	-	12	1.95	16	N/A	N/A
6.23	68.2	107.8	138.4	68.8	1.0	30.6	1.4	6	clean SAND to silty SAND	125	5.0	14	22	69	44	-	-	13	1.99	16	N/A	N/A
6.40	46.9	73.1	118.6	48.2	0.8	70.0	1.8	5	silty SAND to sandy SILT	120	4.0	12	18	57	42	-	-	18	2.18	16	N/A	N/A
6.56	45.4	69.9	139.2	46.7	1.2	66.2	2.6	5	silty SAND to sandy SILT	120	4.0	11	17	55	41	-	-	23	2.31	16	N/A	N/A
6.73	57.7	87.9	151.2	59.2	1.4	77.0	2.5	5	silty SAND to sandy SILT	120	4.0	14	22	63	42	-	-	20	2.22	16	N/A	N/A
6.89	63.6	95.7	144.7	65.4	1.3	88.8	2.0	5	silty SAND to sandy SILT	120	4.0	16	24	66	43	-	-	17	2.13	16	N/A	N/A
7.05	87.8	130.6	167.8	89.3	1.5	75.1	1.7	6	clean SAND to silty SAND	125	5.0	18	26	76	44	-	-	13	1.99	16	N/A	N/A
7.22	93.8	137.8	232.9	96.1	3.3	114.9	3.5	5	silty SAND to sandy SILT	120	4.0	23	34	78	44	-	-	19	2.21	16	N/A	N/A
7.38	166.6	242.0	362.2	168.9	6.7	120.0	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.0	9.9	16	2.12	16	N/A	N/A
7.55	205.9	296.0	429.2	207.1	8.6	63.5	4.2	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	16	2.10	30	N/A	N/A
7.71	180.9	257.2	419.8	183.4	8.8	129.0	4.9	9	very stiff fine SOIL	120	2.0	90	100	95	47	-	-	19	2.19	30	N/A	N/A
7.87	180.9	254.7	398.2	182.8	8.1	96.5	4.5	9	very stiff fine SOIL	120	2.0	90	100	95	47	-	-	18	2.15	30	N/A	N/A
8.04	203.9	284.0	391.5	204.8	7.5	47.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.5	9.9	14	2.05	16	N/A	N/A
8.20	189.3	261.2	374.1	190.1	7.2	40.0	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.5	9.9	15	2.09	16	N/A	N/A
8.37	175.0	239.2	326.5	175.7	5.6	40.4	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.6	9.9	14	2.05	16	N/A	N/A
8.53	147.7	200.0	287.9	148.6	4.8	49.1	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.7	9.9	16	2.09	16	N/A	N/A
8.69	128.5	172.5	304.8	130.9	5.7	124.0	4.4	9	very stiff fine SOIL	120	2.0	64	86	85	45	-	-	20	2.24	30	N/A	N/A
8.86	123.9	164.8	290.9	125.1	5.3	57.3	4.3	9	very stiff fine SOIL	120	2.0	62	82	83	45	-	-	20	2.24	30	N/A	N/A
9.02	85.0	112.0	226.6	85.9	3.5	46.4	4.1	9	very stiff fine SOIL	120	2.0	43	56	71	43	-	-	23	2.32	30	N/A	N/A
9.19	63.2	82.5	209.9	64.6	3.0	72.8	4.7	4	clayy SILT to silty CLAY	115	2.0	32	41	-	-	4.4	9.9	29	2.45	15	N/A	N/A
9.35	76.4	99.0	200.5	78.1	2.8	83.9	3.7	5	silty SAND to sandy SILT	120	4.0	19	25	67	42	-	-	23	2.32	16	N/A	N/A
9.51	77.5	99.5	208.3	79.1	3.1	82.9	4.0	4	clayy SILT to silty CLAY	115	2.0	39	50	-	-	5.4	9.9	24	2.34	15	N/A	N/A
9.68	85.9	109.4	189.5	87.4	2.6	76.0	3.0	5	silty SAND to sandy SILT	120	4.0	21	27	70	43	-	-	20	2.23	16	N/A	N/A
9.84	77.5	97.8	186.6	78.9	2.6	74.3	3.3	5	silty SAND to sandy SILT	120	4.0	19	24	66	42	-	-	22	2.29	16	N/A	N/A
10.01	74.2	92.9	210.5	76.2	3.2	99.7	4.3	4	clayy SILT to silty CLAY	115	2.0	37	46	-	-	5.2	9.9	26	2.39	15	N/A	N/A
10.17	137.0	170.2	271.6	139.8	4.9	140.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.0	9.9	18	2.17	16	N/A	N/A
10.34	185.4	228.7	301.0	188.4	5.3	152.1	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.2	9.9	13	2.01	16	N/A	N/A
10.50	166.6	203.9	333.1	172.3	7.1	290.0	4.3	9	very stiff fine SOIL	120	2.0	83	100	91	45	-	-	19	2.19	30	N/A	N/A
10.66	185.4	225.2	306.7	190.0	5.7	231.1	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.2	9.9	14	2.04	16	N/A	N/A
10.83	177.4	213.8	285.9	180.5	5.0	156.3	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.7	9.9	14	2.03	16	N/A	N/A
10.99	162.7	194.7	301.8	167.7	6.1	256.4	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.7	9.9	17	2.15	16	N/A	N/A
11.16	196.9	234.0	333.1	202.9	6.9	303.0	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.0	9.9	15	2.08	16	N/A	N/A
11.32	175.6	207.2	320.8	178.3	6.8	139.6	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.6	9.9	17	2.15	16	N/A	N/A
11.48	140.3	164.4	284.9	143.0	5.8	137.8	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.2	9.9	20	2.23	16	N/A	N/A
11.65	99.0	115.3	243.5	102.7	4.5	187.2	4.5	9	very stiff fine SOIL	120	2.0	50	58	72	42	-	-	24	2.35	30	N/A	N/A
11.81	123.1	142.3	244.9	127.2	4.5	208.6	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.1	9.9	20	2.22	16	N/A	N/A
11.98	134.7	154.7	315.6	139.6	7.1	251.0	5.3	9	very stiff fine SOIL	120	2.0	67	77	81	44	-	-	24	2.33	30	N/A	N/A
12.14	188.9	216.2	403.6	191.8	10.6	149.9	5.6	9	very stiff fine SOIL	120	2.0	94	100	92	45	-	-	22	2.27	30	0.00	0.0
12.30	230.1	262.5	449.7	232.5	12.4	118.4	5.4	9	very stiff fine SOIL	120	2.0	100	100	95	46	-	-	20	2.22	30	0.00	0.0
12.47	171.5	194.9	436.4	171.9	12.0	20.5	7.0	9	very stiff fine SOIL	120	2.0	86	97	89	45	-	-	26	2.38	30	0.00	0.0
12.63	186.7	211.5	405.0	187.0	10.7	17.5	5.8	9	very stiff fine SOIL	120	2.0	93	100	92	45	-	-	22	2.29	30	0.00	0.0
12.80	148.4	167.6	315.6	148.7	7.2	14.5	4.9	9	very stiff fine SOIL	120	2.0	74	84	84	44	-	-	22	2.28	30	0.00	0.0
12.96	126.1	142.0	225.8	126.5	4.0	20.3	3.2	5	silty SAND to sandy SILT	120	4.0	32	35	79	43	-	-	18	2.17	16	0.00	0.0
13.12	99.4	111.5	201.0	100.1	3.3	36.0	3.3	5	silty SAND to sandy SILT	120	4.0	25	28	71	42	-	-	21	2.25	16	0.00	0.0
13.29	96.7	108.2	182.2	97.6	2.7	45.4	2.8	5	silty SAND to sandy SILT	120	4.0	24	27	70	42	-	-	19	2.21	16	0.00	0.0
13.45	95.8	106.9	156.0	96.8	1.9	50.1	2.0	5	silty SAND to sandy SILT	120	4.0	24	27	69	42	-	-	16	2.10	16	0.11	0.8
13.62	72.7	80.9	131.4	73.7	1.4	50.7	2.0	5	silty SAND to sandy SILT	120	4.0	18	20	60	40	-	-	18	2.18	16	0.50	2.5
13.78	61.9	68.6	148.9	63.0	1.9	55.6	3.0	5	silty SAND to sandy SILT	120	4.0	15	17	55	39	-	-	25	2.36	16	0.18	0.6
13.94	69.0	76.3	150.2	70.2	1.9	58.0	2.8	5	silty SAND to sandy SILT	120	4.0	17	19	58	40	-	-	23	2.31	16	0.17	0.6
14.11	68.2	75.1	140.0	69.2	1.7	53.8	2.5	5	silty SAND to sandy SILT	120	4.0	17	19	58	40	-	-	22	2.27	16	0.30	1.4
14.27	66.4	73.0	134.9	67.4	1.6	50.2	2.4	5	silty SAND to sandy SILT	120	4.0	17	18	57	40	-	-	21	2.27	16	0.42	2.1
14.44	58.9	64.5	129.0	59.9	1.4	49.4	2.4	5	silty SAND to sandy SILT	120	4.0	15	16	53	39	-	-	23	2.32	16	0.66	3.7
14.60	61.6	67.2	130.1	62.5	1.4	48.7	2.4	5	silty SAND to sandy SILT	120	4.0	15	17	54	39	-	-	22	2.30	16	0.63	3.4
14.76	62.8	68.4	147.0	63.8	1.8	50.9	3.0	5	silty SAND to sandy SILT	120	4.0	16	17	54	39	-	-	25	2.36	16	0.20	0.8
14.93	56.7	61.5	155.2	57.5	2.0	45.0	3.6	4	clayy SILT to silty CLAY	115	2.0	28	31	-	-	3.9	9.9	28	2.45	15	0.14	0.3
15.09	54.6	59.1	162.5	55.5	2.2	42.2	4.0	4	clayy SILT to silty CLAY	115	2.0	27	30	-	-	3.8	9.9	31	2.50	15	0.00	0.0
15.26	53.9	58.2	139.1	54.7	1.6	42.5	3.1	4	clayy SILT to silty CLAY	115	2.0	27	29	-	-	3.8	9.9	27	2.42	15	0.36	1.5
15.42	52.0	56.0	161.3	52.8	2.1	39.7	4.1	4	clayy SILT to silty CLAY	115	2.0	26	28	-	-	3.6	9.9	32	2.52	15	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(439).cpt
CPT Date: 5/13/2016 6:39:52 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No: SB00666-1
Cone/Rig: DDG1268

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	67.7	72.7	149.8	68.7	1.9	52.7	2.9	5	silty SAND to sandy SILT	120	4.0	17	18	56	39	-	-	24	2.33	16	0.19	0.8
15.75	52.7	56.5	147.0	53.6	1.8	42.5	3.5	4	clayy SILT to silty CLAY	115	2.0	26	28	-	-	3.7	9.9	29	2.47	15	0.22	0.7
15.91	39.4	44.3	-	40.3	1.7	45.2	4.5	4	clayy SILT to silty CLAY	115	2.0	20	22	-	-	2.7	9.9	36	2.62	15	-	-
16.08	48.2	51.3	149.3	49.0	1.8	45.8	3.9	4	clayy SILT to silty CLAY	115	2.0	24	26	-	-	3.3	9.9	32	2.53	15	0.20	0.5
16.24	53.5	56.8	156.6	54.4	2.0	47.2	3.9	4	clayy SILT to silty CLAY	115	2.0	27	28	-	-	3.7	9.9	31	2.50	15	0.15	0.3
16.40	52.1	55.2	166.9	52.9	2.3	39.9	4.4	4	clayy SILT to silty CLAY	115	2.0	26	28	-	-	3.6	9.9	33	2.55	15	0.00	0.0
16.57	56.2	59.4	185.2	57.1	2.7	46.5	5.0	4	clayy SILT to silty CLAY	115	2.0	28	30	-	-	3.9	9.9	34	2.56	15	0.00	0.0
16.73	71.8	75.7	162.3	72.6	2.3	38.3	3.3	5	silty SAND to sandy SILT	120	4.0	18	19	58	40	-	-	25	2.36	16	0.00	0.0
16.90	42.3	46.5	-	43.0	1.8	34.5	4.4	4	clayy SILT to silty CLAY	115	2.0	21	23	-	-	2.9	9.9	35	2.60	15	-	-
17.06	32.1	37.5	-	32.8	1.2	35.0	4.0	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.2	9.9	37	2.64	15	-	-
17.23	28.4	33.0	-	29.1	1.0	33.5	3.8	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	1.9	9.9	39	2.66	15	-	-
17.39	29.2	33.8	-	29.9	1.0	35.5	3.4	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.0	9.9	37	2.63	15	-	-
17.55	28.6	32.9	-	29.3	1.1	33.3	4.1	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.0	9.9	40	2.69	15	-	-
17.72	34.6	39.6	-	35.4	1.8	36.3	5.3	3	silty CLAY to CLAY	115	1.5	23	26	-	-	2.4	9.9	41	2.71	15	-	-
17.88	75.9	78.7	120.5	76.5	1.3	29.4	1.7	5	silty SAND to sandy SILT	120	4.0	19	20	59	40	-	-	17	2.14	16	1.53	10.0
18.05	59.2	61.1	123.8	59.8	1.4	30.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	15	51	38	-	-	23	2.32	16	1.32	11.8
18.21	50.8	52.4	128.0	51.5	1.4	37.0	2.9	4	clayy SILT to silty CLAY	115	2.0	25	26	-	-	3.5	9.9	28	2.43	15	1.07	26.8
18.37	51.6	53.1	74.7	52.4	0.4	39.3	0.8	5	silty SAND to sandy SILT	120	4.0	13	13	46	37	-	-	15	2.07	16	2.97	40.8
18.54	66.6	68.3	92.5	67.2	0.6	29.4	1.0	6	clean SAND to silty SAND	125	5.0	13	14	54	39	-	-	14	2.04	16	2.49	29.1
18.70	35.0	37.0	-	35.4	1.2	20.4	3.5	4	clayy SILT to silty CLAY	115	2.0	18	18	-	-	2.4	9.9	36	2.61	15	-	-
18.87	68.7	70.1	135.3	69.1	1.7	17.3	2.5	5	silty SAND to sandy SILT	120	4.0	17	18	55	39	-	-	22	2.29	16	0.65	3.7
19.03	56.0	57.0	99.0	56.3	0.9	11.9	1.6	5	silty SAND to sandy SILT	120	4.0	14	14	48	38	-	-	20	2.23	16	2.36	36.7
19.19	26.2	28.5	-	26.4	0.8	12.8	3.2	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.8	9.0	39	2.67	15	-	-
19.36	42.4	43.0	111.4	42.7	1.1	13.8	2.6	5	silty SAND to sandy SILT	120	4.0	11	11	39	36	-	-	29	2.46	16	2.12	51.2
19.52	65.8	66.4	125.8	66.0	1.5	11.6	2.2	5	silty SAND to sandy SILT	120	4.0	16	17	54	39	-	-	22	2.28	16	1.28	10.2
19.69	62.8	63.2	116.3	63.0	1.2	12.4	2.0	5	silty SAND to sandy SILT	120	4.0	16	16	52	38	-	-	21	2.26	16	1.90	29.6
19.85	56.9	57.2	96.1	57.2	0.8	13.6	1.4	5	silty SAND to sandy SILT	120	4.0	14	14	49	38	-	-	19	2.21	16	2.41	36.6
20.01	36.5	36.6	73.2	36.8	0.4	15.2	1.2	5	silty SAND to sandy SILT	120	4.0	9	9	34	35	-	-	23	2.32	16	3.02	51.2
20.18	21.1	22.3	-	21.4	0.4	16.6	2.1	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.4	6.9	37	2.64	15	-	-
20.34	16.8	17.7	-	17.1	0.4	17.6	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.1	5.4	45	2.77	15	-	-
20.51	14.5	15.2	-	14.8	0.3	17.6	2.2	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	4.6	46	2.80	15	-	-
20.67	14.6	15.2	-	14.9	0.3	17.8	2.0	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	4.6	45	2.78	15	-	-
20.83	15.5	16.1	-	15.9	0.2	17.9	1.7	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.0	4.9	41	2.71	15	-	-
21.00	13.6	14.0	-	13.9	0.2	18.2	1.9	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	4.2	46	2.80	15	-	-
21.16	13.9	14.3	-	14.2	0.2	18.5	1.5	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	4.3	42	2.74	15	-	-
21.33	15.6	16.0	-	15.9	0.2	18.9	1.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.0	4.8	41	2.70	15	-	-
21.49	16.1	16.4	-	16.4	0.2	19.3	1.5	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	5.0	40	2.68	15	-	-
21.65	15.6	15.9	-	16.0	0.2	19.4	1.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.0	4.8	41	2.71	15	-	-
21.82	14.7	14.9	-	15.1	0.2	19.8	1.5	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	1.0	4.5	42	2.72	15	-	-
21.98	13.4	13.5	-	13.8	0.2	19.8	1.7	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	4.0	45	2.78	15	-	-
22.15	12.2	12.2	-	12.6	0.2	20.5	1.7	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	3.6	48	2.83	15	-	-
22.31	14.4	14.4	-	14.8	0.3	21.5	2.1	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	4.3	47	2.81	15	-	-
22.47	16.3	16.2	-	16.7	0.3	22.0	2.3	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	4.9	46	2.79	15	-	-
22.64	24.1	23.8	-	24.5	0.8	22.0	3.4	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	7.4	43	2.75	15	-	-
22.80	34.7	34.2	-	35.1	1.5	23.6	4.6	3	silty CLAY to CLAY	115	1.5	23	23	-	-	2.4	9.9	41	2.72	15	-	-
22.97	74.2	71.4	152.5	74.7	2.2	25.7	3.0	5	silty SAND to sandy SILT	120	4.0	19	18	56	39	-	-	25	2.35	16	0.26	1.2
23.13	93.6	89.9	170.8	94.0	2.8	19.0	3.0	5	silty SAND to sandy SILT	120	4.0	23	22	63	40	-	-	22	2.28	16	0.00	0.0
23.30	85.5	81.9	182.5	85.9	3.1	20.6	3.7	4	clayy SILT to silty CLAY	115	2.0	43	41	-	-	6.0	9.9	26	2.38	15	0.00	0.0
23.46	82.0	78.4	188.8	82.5	3.3	22.6	4.1	4	clayy SILT to silty CLAY	115	2.0	41	39	-	-	5.7	9.9	27	2.42	15	0.00	0.0
23.62	84.1	80.3	169.0	84.5	2.7	18.3	3.3	5	silty SAND to sandy SILT	120	4.0	21	20	60	39	-	-	24	2.35	16	0.00	0.0
23.79	63.0	60.0	146.7	63.4	2.0	18.0	3.3	4	clayy SILT to silty CLAY	115	2.0	32	30	-	-	4.4	9.9	28	2.43	15	0.40	2.0
23.95	54.7	52.0	105.0	55.1	1.0	20.0	1.9	5	silty SAND to sandy SILT	120	4.0	14	13	45	37	-	-	23	2.32	16	2.25	42.0
24.12	49.4	46.8	119.0	49.9	1.3	24.2	2.7	4	clayy SILT to silty CLAY	115	2.0	25	23	-	-	3.4	9.9	29	2.45	15	1.89	47.8
24.28	55.7	52.7	158.7	56.2	2.3	25.8	4.2	4	clayy SILT to silty CLAY	115	2.0	28	26	-	-	3.9	9.9	33	2.55	15	0.19	0.5
24.44	73.3	69.2	167.8	73.9	2.7	27.5	3.7	4	clayy SILT to silty CLAY	115	2.0	37	35	-	-	5.1	9.9	28	2.43	15	0.00	0.0
24.61	151.8	143.1	180.4	152.3	2.6	23.1	1.7	6	clean SAND to silty SAND	125	5.0	30	29	79	42	-	-	12	1.97	16	0.00	0.0
24.77	161.8	152.1	198.4	162.0	3.3	9.0	2.0	5	silty SAND to sandy SILT	120	4.0	40	38	81	43	-	-	13	2.00	16	0.00	0.0
24.94	137.5	129.0	187.5	137.6	3.2	5.4	2.4	5	silty SAND to sandy SILT	120	4.0	34	32	75	42	-	-	16	2.10	16	0.00	0.0
25.10	108.2	101.3	166.8	108.3	2.7	7.3	2.5	5	silty SAND to sandy SILT	120	4.0	27	25	67	41	-	-	19	2.19	16	0.00	0.0
25.26	96.2	89.8	152.9	96.4	2.3	9.7	2.4	5	silty SAND to sandy SILT	120	4.0	24	22	63	40	-	-	19	2.21	16	0.29	1.6
25.43	88.9	82.8	154.8	89.1	2.4	11.0	2.7	5	silty SAND to sandy SILT	120	4.0	22	21	61	39	-	-	22	2.27	16	0.26	1.4
25.59	90.1	83.8	152.5	90.4	2.3	15.5	2.6	5	silty SAND to sandy SILT	120	4.0	23	21	61	39	-	-	21	2.26	16	0.31	1.7
25.76	72.4	67.1	156.7	72.7	2.4	16.4	3.4	4	clayy SILT to silty CLAY	115	2.0	36	34	-	-	5.0	9.9	27	2.41	15	0.23	1.0
25.92	83.8	77.6	179.9	84.2	3.1	19.0	3.8	4	clayy SILT to silty CLAY	115	2.0	42	39	-	-	5.8	9.9	26	2.40	15	0.00	0.0
26.08	155.6	143.8	211.6	156.0	4.1	18.1	2.7	5	silty SAND to sandy SILT	120	4.0	39	36	79	42	-	-	16	2.11	16	0.00	0.0
26.25	214.3	197.6	292.1	214.7	7.3	17.7	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.1	9.9	16	2.11	16	0.00	0.0
26.41	279.1	256.8	335.6	279.4	8.4	17.7	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.4	9.9	13	2.00	16	0.00	0.0
26.58	275.0	252.6	336.5	275.3	8.6	18.1	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.1	9.9	14	2.02	16	0.00	0.0
26.74	351.7	322.5	383.6	352.0	9.2	12.7	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.2	9.9	10	1.90	16	0.00	0.0
26.90	302.7	277.0	343.8	302.8	8.2	6.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.0	9.9	12	1.95	16	0.00	0.0
27.07	303.4	277.1	331.0	303.5	7.3	1.4	2.4	6	clean SAND to silty SAND	125	5.0	61	55	95	45	-	-	11	1.91	16	0.00	0.0
27.23	283.8	258.6	303.2	283.8	6.1	-0.7	2.2	6	clean SAND to silty SAND	125	5.0	57	52	95	45	-	-	10	1.88	16	0.00	0.0
27.40	271.4	246.7	293.0	271.4	5.9	-1.4	2.2	6	clean SAND to silty SAND	125	5.0	54	49	95	45	-	-	10	1.90	16	0.00	0.0
27.56	273.7	248.3	303.9	273.7	6.6	-2.1	2.4	6	clean SAND to silty SAND	125	5.0	55	50	95	45	-	-	11	1.94	16	0.00	0.0
27.72	261.2	236.4	303.6	261.2	7.1	-1.9	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.2	9.9	13	1.99	16	0.00	0.0
27.89	279.2	252.2	312.1	279.2	7.1	-0.7	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.4	9.9	12	1.95	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(440).cpt
CPT Date: 5/13/2016 7:13:24 AM
GW During Test: 12 ft

Sounding ID: CPT-02
Project No: SB00666-1
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	Nk - -	* Vol Strn %	* Cycl SStn %
0.33	24.7	39.7	72.4	24.7	0.3	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	6	10	36	48	-	-	21	2.26	16	N/A	N/A
0.49	61.5	98.6	133.9	61.5	1.0	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	15	25	67	48	-	-	14	2.04	16	N/A	N/A
0.66	77.9	125.0	153.4	77.9	1.1	0.8	1.4	6	clean SAND to silty SAND	125	5.0	16	25	74	48	-	-	11	1.94	16	N/A	N/A
0.82	39.1	62.8	108.8	39.2	0.7	0.7	1.8	5	silty SAND to sandy SILT	120	4.0	10	16	52	48	-	-	20	2.23	16	N/A	N/A
0.98	30.7	49.3	90.0	30.8	0.5	0.6	1.5	5	silty SAND to sandy SILT	120	4.0	8	12	44	48	-	-	21	2.26	16	N/A	N/A
1.15	35.9	57.5	107.0	35.9	0.7	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	9	14	49	48	-	-	21	2.27	16	N/A	N/A
1.31	67.0	107.5	150.2	67.1	1.2	0.7	1.8	5	silty SAND to sandy SILT	120	4.0	17	27	69	48	-	-	15	2.07	16	N/A	N/A
1.48	95.5	153.1	175.8	95.5	1.2	1.2	1.3	6	clean SAND to silty SAND	125	5.0	19	31	81	48	-	-	9	1.85	16	N/A	N/A
1.64	96.8	155.3	183.7	96.8	1.5	0.2	1.5	6	clean SAND to silty SAND	125	5.0	19	31	82	48	-	-	10	1.89	16	N/A	N/A
1.80	80.2	128.7	167.9	80.2	1.4	0.4	1.8	6	clean SAND to silty SAND	125	5.0	16	26	75	48	-	-	13	2.00	16	N/A	N/A
1.97	78.6	126.1	165.9	78.7	1.4	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	20	32	75	48	-	-	13	2.01	16	N/A	N/A
2.13	68.7	110.1	160.2	68.7	1.4	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	17	28	70	48	-	-	16	2.10	16	N/A	N/A
2.30	58.1	93.2	148.8	58.1	1.3	0.4	2.2	5	silty SAND to sandy SILT	120	4.0	15	23	65	47	-	-	18	2.17	16	N/A	N/A
2.46	50.8	81.5	141.2	50.8	1.2	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	13	20	60	46	-	-	20	2.23	16	N/A	N/A
2.62	56.5	90.6	143.3	56.5	1.2	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	14	23	64	47	-	-	18	2.16	16	N/A	N/A
2.79	81.6	130.8	170.6	81.6	1.5	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	20	33	76	48	-	-	13	2.00	16	N/A	N/A
2.95	129.6	207.8	236.0	129.6	2.1	0.6	1.6	6	clean SAND to silty SAND	125	5.0	26	42	91	48	-	-	9	1.84	16	N/A	N/A
3.12	192.7	309.1	337.1	192.7	3.5	0.9	1.8	6	clean SAND to silty SAND	125	5.0	39	62	95	48	-	-	8	1.78	16	N/A	N/A
3.28	228.0	365.6	408.8	228.0	5.1	0.9	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.1	9.9	8	1.82	16	N/A	N/A
3.45	232.0	372.1	439.4	232.0	6.4	1.4	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.4	9.9	10	1.89	16	N/A	N/A
3.61	297.3	476.8	558.8	297.4	9.1	2.4	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.7	9.9	10	1.88	16	N/A	N/A
3.77	505.0	809.9	878.3	505.1	14.5	3.7	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	33.4	9.9	7	1.77	16	N/A	N/A
3.94	447.5	717.6	841.4	447.6	16.2	4.5	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	29.6	9.9	10	1.88	16	N/A	N/A
4.10	461.6	740.3	878.0	461.7	17.5	6.1	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	30.6	9.9	10	1.90	16	N/A	N/A
4.27	433.8	695.7	871.7	433.9	18.9	7.5	4.4	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	12	1.96	30	N/A	N/A
4.43	354.6	568.8	794.5	354.8	18.5	7.9	5.2	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	15	2.07	30	N/A	N/A
4.59	330.6	530.2	814.3	330.8	20.3	13.2	6.1	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	17	2.14	30	N/A	N/A
4.76	293.8	471.2	809.0	294.3	20.9	25.9	7.1	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	20	2.22	30	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(441)c.cpt
CPT Date: 5/13/2016 7:23:51 AM
GW During Test: 12 ft

Sounding ID: CPT-03
Project No: SB00666-1
Cone/Rig: DDG1268

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	19.4	31.1	41.3	19.4	0.0	-0.2	0.2	6	clean SAND to silty SAND	125	5.0	4	6	28	48	-	-	14	2.02	16	N/A	N/A
0.49	24.7	39.7	46.8	24.7	0.0	-0.2	0.1	6	clean SAND to silty SAND	125	5.0	5	8	36	48	-	-	10	1.89	16	N/A	N/A
0.66	21.3	34.2	42.5	21.3	0.0	-0.3	0.1	6	clean SAND to silty SAND	125	5.0	4	7	32	48	-	-	12	1.95	16	N/A	N/A
0.82	20.1	32.3	41.2	20.1	0.0	-0.6	0.1	6	clean SAND to silty SAND	125	5.0	4	6	30	47	-	-	12	1.98	16	N/A	N/A
0.98	22.8	36.5	44.4	22.8	0.0	-0.2	0.1	6	clean SAND to silty SAND	125	5.0	5	7	34	47	-	-	11	1.93	16	N/A	N/A
1.15	23.6	37.9	47.4	23.6	0.0	-0.2	0.2	6	clean SAND to silty SAND	125	5.0	5	8	35	46	-	-	12	1.96	16	N/A	N/A
1.31	25.2	40.4	53.7	25.2	0.1	-0.1	0.4	6	clean SAND to silty SAND	125	5.0	5	8	37	46	-	-	14	2.02	16	N/A	N/A
1.48	29.3	46.9	58.4	29.3	0.1	-0.2	0.3	6	clean SAND to silty SAND	125	5.0	6	9	42	46	-	-	12	1.95	16	N/A	N/A
1.64	28.8	46.2	57.3	28.8	0.1	-0.2	0.3	6	clean SAND to silty SAND	125	5.0	6	9	41	46	-	-	12	1.95	16	N/A	N/A
1.80	27.9	44.7	61.3	27.9	0.1	-0.3	0.5	6	clean SAND to silty SAND	125	5.0	6	9	40	45	-	-	14	2.05	16	N/A	N/A
1.97	24.4	39.1	56.4	24.4	0.1	-0.3	0.5	5	silty SAND to sandy SILT	120	4.0	6	10	36	44	-	-	16	2.09	16	N/A	N/A
2.13	20.2	32.4	54.6	20.2	0.1	-0.4	0.6	5	silty SAND to sandy SILT	120	4.0	5	8	30	43	-	-	19	2.21	16	N/A	N/A
2.30	16.9	27.1	49.8	16.9	0.1	-0.5	0.6	5	silty SAND to sandy SILT	120	4.0	4	7	24	41	-	-	21	2.27	16	N/A	N/A
2.46	14.6	23.4	40.9	14.6	0.0	-0.5	0.3	5	silty SAND to sandy SILT	120	4.0	4	6	19	40	-	-	20	2.23	16	N/A	N/A
2.62	13.8	22.2	35.6	13.8	0.0	-0.5	0.2	5	silty SAND to sandy SILT	120	4.0	3	6	17	40	-	-	18	2.17	16	N/A	N/A
2.79	12.9	20.7	34.2	12.9	0.0	-0.5	0.1	5	silty SAND to sandy SILT	120	4.0	3	5	15	39	-	-	19	2.19	16	N/A	N/A
2.95	12.6	20.2	33.3	12.6	0.0	-0.5	0.1	5	silty SAND to sandy SILT	120	4.0	3	5	14	39	-	-	19	2.19	16	N/A	N/A
3.12	12.4	19.9	32.7	12.4	0.0	-0.5	0.1	5	silty SAND to sandy SILT	120	4.0	3	5	14	38	-	-	19	2.19	16	N/A	N/A
3.28	11.6	18.7	33.5	11.6	0.0	-0.5	0.2	5	silty SAND to sandy SILT	120	4.0	3	5	12	37	-	-	21	2.25	16	N/A	N/A
3.45	13.4	21.5	35.5	13.4	0.0	-0.5	0.2	5	silty SAND to sandy SILT	120	4.0	3	5	16	38	-	-	19	2.20	16	N/A	N/A
3.61	13.1	20.9	36.8	13.0	0.0	-0.4	0.2	5	silty SAND to sandy SILT	120	4.0	3	5	15	38	-	-	20	2.24	16	N/A	N/A
3.77	12.0	19.3	35.0	12.0	0.0	-0.4	0.2	5	silty SAND to sandy SILT	120	4.0	3	5	13	37	-	-	21	2.26	16	N/A	N/A
3.94	10.8	17.3	35.8	10.8	0.0	-0.3	0.3	5	silty SAND to sandy SILT	120	4.0	3	4	9	36	-	-	24	2.34	16	N/A	N/A
4.10	8.0	12.9	29.2	8.0	0.0	0.0	0.1	5	silty SAND to sandy SILT	120	4.0	2	3	5	34	-	-	26	2.39	16	N/A	N/A
4.27	5.1	8.3	26.9	5.1	0.0	0.3	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.3	6.2	35	2.59	15	N/A	N/A
4.43	4.0	6.4	-	4.0	0.0	0.5	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	4.6	41	2.70	15	N/A	N/A
4.59	4.0	6.4	-	4.0	0.0	0.7	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	4.4	41	2.71	15	N/A	N/A
4.76	6.4	10.3	28.0	6.4	0.0	1.0	0.1	1	sensitive fine SOIL	115	2.0	3	5	-	-	0.4	7.0	30	2.49	15	N/A	N/A
4.92	9.5	15.2	30.5	9.5	0.0	1.1	0.1	5	silty SAND to sandy SILT	120	4.0	2	4	5	34	-	-	23	2.32	16	N/A	N/A
5.09	13.2	21.2	33.8	13.2	0.0	1.2	0.1	5	silty SAND to sandy SILT	120	4.0	3	5	16	36	-	-	18	2.17	16	N/A	N/A
5.25	16.4	26.4	37.2	16.5	0.0	1.3	0.1	5	silty SAND to sandy SILT	120	4.0	4	7	23	37	-	-	15	2.07	16	N/A	N/A
5.41	19.2	30.8	40.3	19.2	0.0	1.4	0.1	6	clean SAND to silty SAND	125	5.0	4	6	28	38	-	-	13	2.01	16	N/A	N/A
5.58	22.2	35.6	43.9	22.2	0.0	1.4	0.1	6	clean SAND to silty SAND	125	5.0	4	7	33	38	-	-	11	1.94	16	N/A	N/A
5.74	23.5	37.7	45.5	23.6	0.0	1.5	0.1	6	clean SAND to silty SAND	125	5.0	5	8	35	38	-	-	11	1.92	16	N/A	N/A
5.91	24.3	39.0	46.6	24.3	0.0	1.6	0.1	6	clean SAND to silty SAND	125	5.0	5	8	36	38	-	-	11	1.91	16	N/A	N/A
6.07	25.7	41.2	49.1	25.7	0.0	1.5	0.1	6	clean SAND to silty SAND	125	5.0	5	8	38	39	-	-	10	1.90	16	N/A	N/A
6.23	29.9	47.2	55.6	29.9	0.1	1.5	0.2	6	clean SAND to silty SAND	125	5.0	6	9	42	39	-	-	10	1.89	16	N/A	N/A
6.40	37.1	57.8	65.4	37.2	0.1	1.6	0.3	6	clean SAND to silty SAND	125	5.0	7	12	49	40	-	-	9	1.83	16	N/A	N/A
6.56	42.4	65.2	73.4	42.4	0.1	1.5	0.3	6	clean SAND to silty SAND	125	5.0	8	13	53	41	-	-	9	1.82	16	N/A	N/A
6.73	46.9	71.2	79.9	46.9	0.2	1.5	0.4	6	clean SAND to silty SAND	125	5.0	9	14	56	41	-	-	9	1.82	16	N/A	N/A
6.89	51.3	76.9	85.1	51.3	0.2	1.5	0.4	6	clean SAND to silty SAND	125	5.0	10	15	58	42	-	-	8	1.80	16	N/A	N/A
7.05	54.2	80.3	94.7	54.2	0.4	1.5	0.7	6	clean SAND to silty SAND	125	5.0	11	16	60	42	-	-	10	1.89	16	N/A	N/A
7.22	58.2	85.2	104.6	58.2	0.5	3.1	0.9	6	clean SAND to silty SAND	125	5.0	12	17	62	42	-	-	11	1.94	16	N/A	N/A
7.38	60.1	87.0	108.1	60.2	0.6	3.1	1.0	6	clean SAND to silty SAND	125	5.0	12	17	62	42	-	-	12	1.95	16	N/A	N/A
7.55	57.7	82.5	97.6	57.7	0.4	3.2	0.7	6	clean SAND to silty SAND	125	5.0	12	17	61	42	-	-	10	1.89	16	N/A	N/A
7.71	50.7	71.8	79.2	50.8	0.2	3.4	0.4	6	clean SAND to silty SAND	125	5.0	10	14	56	41	-	-	8	1.80	16	N/A	N/A
7.87	32.6	45.7	71.9	32.7	0.3	4.3	0.9	5	silty SAND to sandy SILT	120	4.0	8	11	41	38	-	-	18	2.16	16	N/A	N/A
8.04	33.8	46.8	73.8	33.9	0.3	6.1	0.9	5	silty SAND to sandy SILT	120	4.0	8	12	42	38	-	-	18	2.16	16	N/A	N/A
8.20	42.8	58.8	80.3	43.0	0.3	7.2	0.8	6	clean SAND to silty SAND	125	5.0	9	12	49	40	-	-	14	2.05	16	N/A	N/A
8.37	41.5	56.4	97.3	41.6	0.6	8.4	1.5	5	silty SAND to sandy SILT	120	4.0	10	14	48	39	-	-	20	2.22	16	N/A	N/A
8.53	55.6	74.8	100.9	55.8	0.6	8.2	1.1	6	clean SAND to silty SAND	125	5.0	11	15	57	41	-	-	14	2.03	16	N/A	N/A
8.69	36.4	48.6	158.6	36.6	1.6	9.1	4.5	4	clayy SILT to silty CLAY	115	2.0	18	24	-	-	2.5	9.9	35	2.59	15	N/A	N/A
8.86	70.9	93.6	193.5	71.1	2.6	10.3	3.7	5	silty SAND to sandy SILT	120	4.0	18	23	65	42	-	-	24	2.34	16	N/A	N/A
9.02	89.7	117.5	259.8	89.9	4.4	10.1	5.0	9	very stiff fine SOIL	120	2.0	45	59	72	43	-	-	25	2.37	30	N/A	N/A
9.19	193.6	251.3	375.4	193.9	7.9	13.4	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.8	9.9	16	2.12	16	N/A	N/A
9.35	221.2	284.7	443.1	221.5	10.5	14.9	4.7	9	very stiff fine SOIL	120	2.0	100	100	95	47	-	-	17	2.15	30	N/A	N/A
9.51	220.5	281.4	448.1	220.9	10.8	19.4	4.9	9	very stiff fine SOIL	120	2.0	100	100	95	47	-	-	18	2.17	30	N/A	N/A
9.68	192.7	243.9	391.7	193.1	8.9	20.6	4.6	9	very stiff fine SOIL	120	2.0	96	100	95	46	-	-	18	2.17	30	N/A	N/A
9.84	160.8	201.7	351.5	161.4	7.7	30.6	4.8	9	very stiff fine SOIL	120	2.0	80	100	90	45	-	-	20	2.23	30	N/A	N/A
10.01	183.1	227.9	389.0	183.7	9.1	31.6	5.0	9	very stiff fine SOIL	120	2.0	92	100	94	46	-	-	20	2.22	30	N/A	N/A
10.17	221.0	272.8	474.0	221.9	12.5	46.2	5.7	9	very stiff fine SOIL	120	2.0	100	100	95	47	-	-	20	2.23	30	N/A	N/A
10.34	379.7	465.1	505.7	380.3	8.7	31.1	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.1	9.9	8	1.77	16	N/A	N/A
10.50	486.2	591.1	619.3	486.7	10.8	27.7	2.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	32.2	9.9	6	1.71	16	N/A	N/A
10.66	616.0	743.5	743.5	616.3	0.0	19.6	0.1	7	grvly SAND to dense SAND	130	6.0	100	100	95	48	-	-	5	0.65	16	N/A	N/A
10.83	650.4	778.7	778.7	650.7	0.0	15.8	0.1	7	grvly SAND to dense SAND	130	6.0	100	100	95	48	-	-	5	0.64	16	N/A	N/A

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(442).cpt
CPT Date: 5/13/2016 7:39:05 AM
GW During Test: 12 ft

Sounding ID: CPT-04
Project No: SB00666-1
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qcln PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	Nk -	* Vol Strn %	* Cycl SStn %
0.33	6.3	10.1	-	6.3	0.1	0.1	1.2	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	9.9	46	2.79	15	N/A	N/A
0.49	10.9	17.4	-	10.9	0.2	0.1	1.4	4	clayy SILT to silty CLAY	115	2.0	5	9	-	-	0.8	9.9	36	2.62	15	N/A	N/A
0.66	21.7	34.8	68.5	21.7	0.2	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	5	9	32	48	-	-	23	2.31	16	N/A	N/A
0.82	37.0	59.4	83.1	37.0	0.3	0.2	0.9	5	silty SAND to sandy SILT	120	4.0	9	15	50	48	-	-	15	2.07	16	N/A	N/A
0.98	43.3	69.4	98.8	43.3	0.5	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	11	17	55	48	-	-	15	2.08	16	N/A	N/A
1.15	54.9	88.1	115.8	54.9	0.7	0.3	1.2	6	clean SAND to silty SAND	125	5.0	11	18	63	48	-	-	13	2.01	16	N/A	N/A
1.31	70.5	113.1	135.1	70.5	0.8	0.4	1.1	6	clean SAND to silty SAND	125	5.0	14	23	71	48	-	-	11	1.91	16	N/A	N/A
1.48	73.0	117.1	140.8	73.0	0.9	0.4	1.2	6	clean SAND to silty SAND	125	5.0	15	23	72	48	-	-	11	1.91	16	N/A	N/A
1.64	74.4	119.3	147.9	74.4	1.0	0.6	1.4	6	clean SAND to silty SAND	125	5.0	15	24	73	48	-	-	12	1.95	16	N/A	N/A
1.80	84.7	135.8	161.2	84.7	1.1	0.7	1.3	6	clean SAND to silty SAND	125	5.0	17	27	77	48	-	-	10	1.90	16	N/A	N/A
1.97	83.8	134.4	161.0	83.8	1.2	0.7	1.4	6	clean SAND to silty SAND	125	5.0	17	27	77	48	-	-	11	1.91	16	N/A	N/A
2.13	81.0	129.8	155.7	81.0	1.1	0.8	1.3	6	clean SAND to silty SAND	125	5.0	16	26	76	48	-	-	11	1.91	16	N/A	N/A
2.30	75.1	120.4	145.8	75.1	1.0	0.8	1.3	6	clean SAND to silty SAND	125	5.0	15	24	73	48	-	-	11	1.92	16	N/A	N/A
2.46	64.7	103.7	131.9	64.7	0.8	0.8	1.3	6	clean SAND to silty SAND	125	5.0	13	21	68	47	-	-	12	1.98	16	N/A	N/A
2.62	53.6	86.0	119.7	53.6	0.8	0.8	1.4	5	silty SAND to sandy SILT	120	4.0	13	21	62	46	-	-	15	2.06	16	N/A	N/A
2.79	46.7	75.0	108.9	46.8	0.6	0.8	1.4	5	silty SAND to sandy SILT	120	4.0	12	19	57	46	-	-	16	2.10	16	N/A	N/A
2.95	44.3	71.1	101.9	44.3	0.6	0.8	1.2	5	silty SAND to sandy SILT	120	4.0	11	18	56	45	-	-	15	2.09	16	N/A	N/A
3.12	46.2	74.1	98.6	46.2	0.5	0.8	1.0	6	clean SAND to silty SAND	125	5.0	9	15	57	45	-	-	14	2.02	16	N/A	N/A
3.28	42.7	68.5	97.3	42.7	0.5	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	11	17	55	44	-	-	15	2.08	16	N/A	N/A
3.45	39.0	62.5	97.4	39.0	0.5	0.3	1.3	5	silty SAND to sandy SILT	120	4.0	10	16	51	44	-	-	17	2.15	16	N/A	N/A
3.61	29.0	46.5	89.6	29.0	0.4	0.6	1.6	5	silty SAND to sandy SILT	120	4.0	7	12	42	42	-	-	22	2.29	16	N/A	N/A
3.77	21.7	34.7	85.8	21.7	0.4	0.6	1.8	5	silty SAND to sandy SILT	120	4.0	5	9	32	40	-	-	28	2.44	16	N/A	N/A
3.94	14.0	22.5	-	14.0	0.3	0.6	2.4	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.0	9.9	38	2.66	15	N/A	N/A
4.10	11.2	18.0	-	11.3	0.2	0.6	2.3	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	9.9	42	2.72	15	N/A	N/A
4.27	10.3	16.5	-	10.3	0.2	0.7	1.9	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	0.7	9.9	41	2.72	15	N/A	N/A
4.43	11.3	18.2	52.1	11.4	0.1	0.6	0.9	5	silty SAND to sandy SILT	120	4.0	3	5	11	36	-	-	32	2.52	16	N/A	N/A
4.59	10.9	17.6	53.3	10.9	0.1	0.2	1.0	5	silty SAND to sandy SILT	120	4.0	3	4	10	35	-	-	33	2.55	16	N/A	N/A
4.76	9.2	14.8	-	9.2	0.1	0.2	1.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.6	9.9	39	2.68	15	N/A	N/A
4.92	7.8	12.6	-	7.8	0.1	0.2	1.2	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.5	8.4	41	2.71	15	N/A	N/A
5.09	6.6	10.6	-	6.6	0.1	0.2	1.1	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	6.8	44	2.77	15	N/A	N/A
5.25	6.5	10.4	-	6.5	0.1	0.1	0.8	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	6.5	42	2.73	15	N/A	N/A
5.41	5.4	8.7	-	5.4	0.0	0.2	0.8	4	clayy SILT to silty CLAY	115	2.0	3	4	-	-	0.4	5.2	46	2.80	15	N/A	N/A
5.58	5.3	8.5	-	5.3	0.0	0.2	0.9	4	clayy SILT to silty CLAY	115	2.0	3	4	-	-	0.4	4.9	47	2.82	15	N/A	N/A
5.74	3.2	5.2	-	3.2	0.0	0.3	1.6	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.8	69	3.14	15	N/A	N/A
5.91	1.8	2.9	-	1.8	0.0	0.4	2.7	3	silty CLAY to CLAY	115	1.5	1	2	-	-	0.1	1.4	95	3.51	15	N/A	N/A
6.07	1.7	2.7	-	1.7	0.0	0.4	2.9	3	silty CLAY to CLAY	115	1.5	1	2	-	-	0.1	1.2	95	3.56	15	N/A	N/A
6.23	2.2	3.5	-	2.2	0.0	0.5	2.5	3	silty CLAY to CLAY	115	1.5	1	2	-	-	0.1	1.6	91	3.41	15	N/A	N/A
6.40	3.4	5.5	-	3.5	0.1	0.6	1.8	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.6	69	3.15	15	N/A	N/A
6.56	6.0	9.6	-	6.0	0.1	0.7	1.3	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	4.7	49	2.85	15	N/A	N/A
6.73	8.5	13.7	-	8.5	0.2	0.9	1.9	4	clayy SILT to silty CLAY	115	2.0	4	7	-	-	0.6	6.7	46	2.80	15	N/A	N/A
6.89	18.5	28.0	61.5	18.5	0.2	1.1	1.0	5	silty SAND to sandy SILT	120	4.0	5	7	25	36	-	-	25	2.37	16	N/A	N/A
7.05	24.3	36.5	69.3	24.4	0.3	1.4	1.1	5	silty SAND to sandy SILT	120	4.0	6	9	34	37	-	-	22	2.28	16	N/A	N/A
7.22	34.1	50.6	68.8	34.1	0.2	2.0	0.6	6	clean SAND to silty SAND	125	5.0	7	10	45	39	-	-	14	2.04	16	N/A	N/A
7.38	18.6	27.3	78.1	18.6	0.3	2.2	1.8	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.3	9.9	32	2.52	15	N/A	N/A
7.55	27.8	40.3	89.9	27.8	0.5	2.5	1.8	5	silty SAND to sandy SILT	120	4.0	7	10	37	38	-	-	26	2.38	16	N/A	N/A
7.71	49.7	71.3	101.1	49.7	0.6	2.8	1.2	5	silty SAND to sandy SILT	120	4.0	12	18	56	41	-	-	15	2.08	16	N/A	N/A
7.87	49.0	69.5	98.0	49.0	0.6	3.2	1.1	5	silty SAND to sandy SILT	120	4.0	12	17	55	41	-	-	15	2.07	16	N/A	N/A
8.04	41.7	58.6	86.2	41.8	0.4	3.4	1.0	5	silty SAND to sandy SILT	120	4.0	10	15	49	40	-	-	16	2.11	16	N/A	N/A
8.20	35.0	48.6	89.3	35.0	0.5	3.7	1.5	5	silty SAND to sandy SILT	120	4.0	9	12	43	39	-	-	21	2.26	16	N/A	N/A
8.37	39.0	53.7	93.1	39.1	0.6	3.8	1.5	5	silty SAND to sandy SILT	120	4.0	10	13	46	39	-	-	20	2.23	16	N/A	N/A
8.53	53.4	72.8	96.7	53.5	0.5	4.0	1.0	6	clean SAND to silty SAND	125	5.0	11	15	57	41	-	-	14	2.02	16	N/A	N/A
8.69	48.1	64.9	91.1	48.2	0.5	4.2	1.0	5	silty SAND to sandy SILT	120	4.0	12	16	53	40	-	-	15	2.07	16	N/A	N/A
8.86	47.7	63.8	78.2	47.8	0.3	4.3	0.6	6	clean SAND to silty SAND	125	5.0	10	13	52	40	-	-	11	1.94	16	N/A	N/A
9.02	49.2	65.1	92.2	49.3	0.5	4.4	1.1	5	silty SAND to sandy SILT	120	4.0	12	16	53	40	-	-	15	2.08	16	N/A	N/A
9.19	49.0	64.3	85.0	49.1	0.4	4.6	0.8	6	clean SAND to silty SAND	125	5.0	10	13	52	40	-	-	13	2.02	16	N/A	N/A
9.35	54.8	71.3	98.8	54.9	0.6	4.9	1.1	5	silty SAND to sandy SILT	120	4.0	14	18	56	40	-	-	15	2.06	16	N/A	N/A
9.51	68.2	87.9	120.4	68.3	0.9	5.2	1.4	5	silty SAND to sandy SILT	120	4.0	17	22	63	41	-	-	14	2.05	16	N/A	N/A
9.68	76.8	98.1	128.5	76.9	1.0	5.4	1.4	6	clean SAND to silty SAND	125	5.0	15	20	66	42	-	-	13	2.01	16	N/A	N/A
9.84	60.7	76.9	135.1	60.8	1.4	5.4	2.2	5	silty SAND to sandy SILT	120	4.0	15	19	58	41	-	-	20	2.23	16	N/A	N/A
10.01	68.8	86.4	159.1	68.9	1.9	5.6	2.8	5	silty SAND to sandy SILT	120	4.0	17	22	62	41	-	-	21	2.27	16	N/A	N/A
10.17	77.0	95.9	179.6	77.1	2.4	5.4	3.2	5	silty SAND to sandy SILT	120	4.0	19	24	66	42	-	-	22	2.28	16	N/A	N/A
10.34	67.6	83.6	169.9	67.7	2.2	5.4	3.3	5	silty SAND to sandy SILT	120	4.0	17	21	61	41	-	-	23	2.33	16	N/A	N/A
10.50	55.8	68.4	142.0	55.9	1.5	5.6	2.8	5	silty SAND to sandy SILT	120	4.0	14	17	54	40	-	-	24	2.34	16	N/A	N/A
10.66	54.5	66.4	125.5	54.7	1.2	5.9	2.3	5	silty SAND to sandy SILT	120	4.0	14	17	53	40	-	-	22	2.28	16	N/A	N/A
10.83	61.5	74.2	133.6	61.6	1.4	6.2	2.3	5	silty SAND to sandy SILT	120	4.0	15	19	57	40	-	-	21	2.25	16	N/A	N/A
10.99	69.1	82.9	156.0	69.3	1.9	6.3	2.8	5	silty SAND to sandy SILT	120	4.0	17	21	61	41	-	-	22	2.28	16	N/A	N/A
11.16	87.5	104.1	213.3	87.7	3.5	6.4	4.0	9	very stiff fine SOIL	120	2.0	44	52	68	42	-	-	24	2.33	30	N/A	N/A
11.32	116.3	137.3	262.4	116.4	5.0	6.5	4.3	9	very stiff fine SOIL	120	2.0	58	69	77	43	-	-	22	2.29	30	N/A	N/A
11.48	141.4	165.7	293.0	141.5	6.1	6.5	4.3	9	very stiff fine SOIL	120	2.0	71	83	84	44	-	-	20	2.24	30	N/A	N/A
11.65	160.1	186.3	305.7	160.2	6.5	6.3	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	9.9	19	2.19	16	N/A	N/A
11.81	179.7	207.8	255.6	179.9	3.9	6.3	2.2	6	clean SAND to silty SAND	125	5.0	36	42	91	45	-	-	11	1.94	16	N/A	N/A
11.98	189.7	217.8	286.2	189.9	5.2	6.2	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.5	9.9	13	2.01	16	N/A	N/A
12.14	228.6	261.7	329.9	228.8	6.3	6.3	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.1	9.9	12	1.97	16	0.00	0.0
12.30	216.9	247.4	325.3	217.0	6.5	5.5	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.3	9.9	13	2.01	16	0.00	0.0
12.47	200.2	227.8	314.9	200.3	6.4	5.5	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.2	9.9	15	2.06	16	0.00	0.0
12.63	192.5	218.3	311.7	192.6	6.5	5.5	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.7	9.9	15	2.08	16	0.00	0.0
12.80	186.9	211.4	305.3	187.0	6.3	5.6	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.3	9.9	16	2.09	16	0.00	0.0
12.96	173.3	195.4	307.1	173.4	6.7	5.8	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.4	9.9	18	2.16	16	0.00	0.0
13.12	180.9	203.4	329.2	181.0	7.6	6.1	4.2	9	very stiff fine SOIL	120	2.0	90	100	90	45	-	-	18	2.18	30	0.00	0.0
13.29	195.7	219.4	342.5	195.8	8.0	6.2	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.9	9.9	17	2.15	16	0.00	0.0
13.45	193.4	216.1	351.1	193.5	8.5	6.5	4.4	9	very stiff fine SOIL	120	2.0	97	100	92	45	-	-	18	2.18	30	0.00	0.0
13.62	211.3	235.4	367.6	211.4	9.0	7.0	4.3	9	very stiff fine SOIL	120	2.0	100	100	95	46	-	-	17	2.15	30	0.00	0.0
13.78	245.9	273.1	387.8	246.0	9.4	7.2	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.2	9.9	15	2.08	16	0.00	0.0
13.94	287.5	318.4	414.0	287.6	9.7	7.2	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.0	9.9	13	2.00	16	0.00	0.0
14.11	316.2	349.2	433.1	316.3	9.9	7.0	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.9	9.9	12	1.95	16	0.00	0.0
14.27	334.5	368.4	449.4	334.6	10.2	7.1	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.1	9.9	11	1.93	16	0.00	0.0
14.44	369.1	405.5	480.0	369.3	10.8	7.2	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.4	9.9	10	1.89	16	0.00	0.0
14.60	398.5	436.4	510.6	398.6	11.6	7.2	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.3	9.9	10	1.88	16	0.00	0.0
14.76	422.8	461.8	516.3	422.9	10.8	7.5	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	28.0	9.9	8	1.82	16	0.00	0.0
14.93	436.2	475.2	536.5	436.3	11.7	7.4	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	28.8	9.9	9	1.83	16	0.00	0.0
15.09	445.0	483.4	523.5	445.1	10.2	7.1	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	29.4	9.9	7	1.77	16	0.00	0.0
15.26	452.3	490.1	538.3	452.4	11.1	6.8	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	29.9	9.9	8	1.79	16	0.00	0.0
15.42	440.2	475.7	528.4	440.4	11.1	6.0	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	29.1	9.9	8	1.81	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Geosolutions
Data File: SDF(442).cpt
CPT Date: 5/13/2016 7:39:05 AM
GW During Test: 12 ft

Sounding ID: CPT-04
Project No: SB00666-1
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qcln PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	399.4	430.5	488.2	399.6	10.3	6.0	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.4	9.9	9	1.84	16	0.00	0.0
15.75	352.7	379.1	439.2	352.8	9.2	6.0	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.3	9.9	10	1.87	16	0.00	0.0
15.91	308.5	330.7	394.9	308.6	8.3	6.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.4	9.9	11	1.91	16	0.00	0.0
16.08	287.6	307.5	371.4	287.7	7.7	6.3	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.0	9.9	11	1.92	16	0.00	0.0
16.24	278.6	297.2	362.9	278.8	7.6	6.4	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.4	9.9	11	1.93	16	0.00	0.0
16.40	277.4	295.1	354.9	277.5	7.1	6.3	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.3	9.9	11	1.91	16	0.00	0.0
16.57	266.3	282.5	341.3	266.4	6.8	6.0	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.6	9.9	11	1.92	16	0.00	0.0
16.73	251.8	266.4	325.4	251.9	6.4	5.9	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.6	9.9	11	1.93	16	0.00	0.0
16.90	224.7	237.1	298.3	224.8	5.8	5.8	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.8	9.9	12	1.97	16	0.00	0.0
17.06	194.6	204.9	266.9	194.7	5.0	5.6	2.6	5	silty SAND to sandy SILT	120	4.0	49	51	91	45	-	-	13	2.00	16	0.00	0.0
17.23	169.5	178.0	241.0	169.6	4.3	5.4	2.6	5	silty SAND to sandy SILT	120	4.0	42	44	86	44	-	-	14	2.04	16	0.00	0.0
17.39	163.1	170.8	191.8	163.2	2.1	5.3	1.3	6	clean SAND to silty SAND	125	5.0	33	34	85	44	-	-	9	1.82	16	0.00	0.0
17.55	158.4	165.4	200.6	158.5	2.7	4.9	1.7	6	clean SAND to silty SAND	125	5.0	32	33	84	44	-	-	11	1.92	16	0.00	0.0
17.72	160.7	167.2	220.1	160.7	3.6	3.2	2.3	5	silty SAND to sandy SILT	120	4.0	40	42	84	44	-	-	13	2.01	16	0.00	0.0
17.88	118.9	123.4	195.6	119.0	3.3	3.1	2.8	5	silty SAND to sandy SILT	120	4.0	30	31	74	42	-	-	18	2.16	16	0.00	0.0
18.05	56.0	58.0	148.6	56.1	1.9	3.1	3.5	4	clayy SILT to silty CLAY	115	2.0	28	29	-	-	3.9	9.9	29	2.46	15	0.24	0.9
18.21	31.6	32.6	104.9	31.6	0.9	3.3	2.8	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.9	34	2.58	15	2.25	51.2
18.37	23.3	26.2	-	23.4	0.7	3.5	3.0	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.6	8.3	39	2.67	15	-	-
18.54	21.9	24.6	-	22.0	0.6	3.6	3.1	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.5	7.7	41	2.71	15	-	-
18.70	23.8	26.6	-	23.9	0.6	3.5	2.5	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.6	8.4	37	2.63	15	-	-
18.87	24.7	26.1	-	24.8	0.6	3.5	2.4	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.7	8.6	36	2.62	15	-	-
19.03	25.6	28.3	-	25.7	0.7	3.4	3.0	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.7	8.9	38	2.65	15	-	-
19.19	30.8	33.9	-	30.9	1.2	3.4	3.9	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.1	9.9	39	2.67	15	-	-
19.36	45.1	49.3	-	45.2	2.2	3.4	5.0	4	clayy SILT to silty CLAY	115	2.0	23	25	-	-	3.1	9.9	36	2.62	15	-	-
19.52	76.4	77.4	180.7	76.4	2.9	3.2	3.9	4	clayy SILT to silty CLAY	115	2.0	38	39	-	-	5.3	9.9	27	2.41	15	0.00	0.0
19.69	100.6	101.7	178.7	100.7	2.9	3.1	2.9	5	silty SAND to sandy SILT	120	4.0	25	25	68	41	-	-	20	2.24	16	0.00	0.0
19.85	88.3	89.0	133.0	88.3	1.6	3.0	1.8	5	silty SAND to sandy SILT	120	4.0	22	22	63	40	-	-	16	2.12	16	0.84	4.2
20.01	54.8	55.1	110.5	54.8	1.1	3.2	2.1	5	silty SAND to sandy SILT	120	4.0	14	14	47	38	-	-	23	2.32	16	2.14	38.7
20.18	33.8	36.1	-	33.9	1.6	3.5	4.9	3	silty CLAY to CLAY	115	1.5	23	24	-	-	2.3	9.9	41	2.71	15	-	-
20.34	85.4	85.5	178.4	85.5	2.9	3.5	3.5	5	silty SAND to sandy SILT	120	4.0	21	21	62	40	-	-	24	2.34	16	0.00	0.0
20.51	127.2	127.0	220.6	127.2	4.3	3.2	3.4	5	silty SAND to sandy SILT	120	4.0	32	32	75	42	-	-	20	2.23	16	0.00	0.0
20.67	122.0	121.5	210.7	122.0	4.0	3.1	3.3	5	silty SAND to sandy SILT	120	4.0	30	30	73	42	-	-	20	2.23	16	0.00	0.0
20.83	94.3	93.6	208.2	94.3	3.9	3.3	4.2	4	clayy SILT to silty CLAY	115	2.0	47	47	-	-	6.6	9.9	26	2.38	15	0.00	0.0
21.00	73.7	73.0	212.4	73.8	3.8	3.5	5.3	4	clayy SILT to silty CLAY	115	2.0	37	37	-	-	5.1	9.9	32	2.53	15	0.00	0.0
21.16	80.0	79.1	210.4	80.0	3.9	3.6	4.9	4	clayy SILT to silty CLAY	115	2.0	40	40	-	-	5.6	9.9	30	2.48	15	0.00	0.0
21.33	112.2	110.7	166.7	112.3	2.5	3.7	2.3	5	silty SAND to sandy SILT	120	4.0	28	28	70	41	-	-	17	2.13	16	0.00	0.0
21.49	159.3	156.8	206.2	159.4	3.4	3.1	2.2	5	silty SAND to sandy SILT	120	4.0	40	39	82	43	-	-	13	2.01	16	0.00	0.0
21.65	178.4	175.2	227.1	178.5	4.0	2.9	2.3	5	silty SAND to sandy SILT	120	4.0	45	44	86	44	-	-	13	2.00	16	0.00	0.0
21.82	188.1	184.3	240.6	188.2	4.5	3.0	2.4	5	silty SAND to sandy SILT	120	4.0	47	46	87	44	-	-	13	2.00	16	0.00	0.0
21.98	174.8	170.8	255.9	174.8	5.5	3.1	3.2	5	silty SAND to sandy SILT	120	4.0	44	43	85	43	-	-	17	2.12	16	0.00	0.0
22.15	155.3	151.4	246.3	155.3	5.3	3.2	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.2	9.9	18	2.18	16	0.00	0.0
22.31	124.9	121.5	248.6	124.9	5.5	3.5	4.5	9	very stiff fine SOIL	120	2.0	62	61	73	42	-	-	24	2.33	30	0.00	0.0
22.47	153.3	148.8	255.4	153.4	5.8	3.9	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.1	9.9	20	2.22	16	0.00	0.0
22.64	109.1	105.6	244.0	109.2	5.3	3.9	4.9	9	very stiff fine SOIL	120	2.0	55	53	69	41	-	-	26	2.40	30	0.00	0.0
22.80	96.8	93.6	215.3	96.9	4.2	3.9	4.4	4	clayy SILT to silty CLAY	115	2.0	48	47	-	-	6.8	9.9	26	2.40	15	0.00	0.0
22.97	49.8	49.1	-	49.9	2.8	3.9	5.7	3	silty CLAY to CLAY	115	1.5	33	33	-	-	3.4	9.9	39	2.67	15	-	-
23.13	26.7	26.2	-	26.8	1.3	4.1	5.3	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.8	8.2	48	2.84	15	-	-
23.30	18.8	18.4	-	18.9	0.7	4.3	3.9	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.6	51	2.88	15	-	-
23.46	16.8	16.3	-	16.9	0.5	4.4	3.5	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	4.9	51	2.89	15	-	-
23.62	16.0	15.5	-	16.1	0.5	4.4	3.2	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.7	51	2.89	15	-	-
23.79	15.2	14.7	-	15.3	0.5	4.3	3.5	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	4.4	54	2.94	15	-	-
23.95	19.0	18.3	-	19.1	0.6	4.3	3.5	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.6	49	2.85	15	-	-
24.12	27.0	25.6	79.3	27.1	0.5	4.1	1.8	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	8.1	33	2.56	15	2.82	51.2
24.28	24.7	23.6	-	24.8	0.6	4.1	2.8	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	7.3	40	2.70	15	-	-
24.44	26.0	24.7	-	26.1	1.0	4.1	3.9	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.8	7.7	45	2.78	15	-	-
24.61	48.0	45.3	117.0	48.1	1.3	4.0	2.7	4	clayy SILT to silty CLAY	115	2.0	24	23	-	-	3.3	9.9	29	2.46	15	1.98	49.7
24.77	34.5	32.4	-	34.5	1.1	3.9	3.2	4	clayy SILT to silty CLAY	115	2.0	17	16	-	-	2.4	9.9	37	2.62	15	-	-
24.94	47.7	44.8	-	47.8	2.3	3.8	5.0	4	clayy SILT to silty CLAY	115	2.0	24	22	-	-	3.3	9.9	38	2.65	15	-	-
25.10	98.1	92.1	200.3	98.2	3.8	3.5	4.0	4	clayy SILT to silty CLAY	115	2.0	49	46	-	-	6.9	9.9	25	2.37	15	0.00	0.0
25.26	114.7	107.4	245.0	114.8	5.5	3.7	4.9	9	very stiff fine SOIL	120	2.0	57	54	69	41	-	-	26	2.39	30	0.00	0.0
25.43	225.1	210.4	297.0	225.2	7.2	3.7	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.8	9.9	15	2.08	16	0.00	0.0
25.59	326.8	304.8	353.9	326.9	7.6	3.5	2.3	6	clean SAND to silty SAND	125	5.0	65	61	95	46	-	-	10	1.87	16	0.00	0.0
25.76	345.8	321.7	353.6	345.8	6.7	3.4	1.9	6	clean SAND to silty SAND	125	5.0	69	64	95	46	-	-	8	1.79	16	0.00	0.0
25.92	300.6	279.1	333.4	300.7	7.3	3.6	2.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.8	9.9	11	1.91	16	0.00	0.0
26.08	198.4	183.8	284.5	198.5	7.1	3.8	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	9.9	17	2.15	16	0.00	0.0
26.25	160.8	148.7	261.9	160.9	6.3	4.6	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	9.9	20	2.24	16	0.00	0.0
26.41	197.0	181.8	272.6	197.1	6.5	5.6	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.0	9.9	17	2.12	16	0.00	0.0
26.58	263.8	243.0	310.5	263.9	7.2	5.1	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.4	9.9	12	1.98	16	0.00	0.0
26.74	253.5	233.0	309.8	253.6	7.5	5.2	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.7	9.9	14	2.02	16	0.00	0.0
26.90	296.8	272.3	354.0	296.9	9.1	5.5	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.6	9.9	13	2.00	16	0.00	0.0
27.07	338.3	309.8	343.3	338.4	6.6	5.7	2.0	6	clean SAND to silty SAND	125	5.0	68	62	95	46	-	-	8	1.80	16	0.00	0.0
27.23	387.6	354.2	431.8	387.7	11.6	5.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.6	9.9	11	1.93	16	0.00	0.0
27.40	484.5	441.8	510.7	484.6	13.6	4.7	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	32.0	9.9	10	1.86	16	0.00	0.0
27.56	464.4	422.7	494.3	464.5	13.3	5.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	30.7	9.9	10	1.88	16	0.00	0.0
27.72	405.4	368.3	439.7	405.5	11.5	4.6	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.8	9.9	11	1.91	16	0.00	0.0
27.89	357.2	323.9	413.9	357.3	11.6	4.3	3.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.6	9.9	12	1.98	16	0.00	0.0
28.05	295.8	267.7	377.6	295.9	11.0	4.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	19.5	9.9	15	2.07	16	0.00	0.0
28.22	183.0	165.4	303.5	183.1	8.3	2.1	4.6	9	very stiff fine SOIL	120	2.0	92	83	84	43	-	-	21	2.26	30	0.00	0.0
28.38	82.3	74.2	194.5	82.3	3.6	-1.3	4.5	4	clayy SILT to silty CLAY	115	2.0	41	37	-	-	5.7	9.9	29	2.47	15	0.00	0.0
28.54	44.6	38.3	-	44.6	2.5	-1.2	5.9	3	silty CLAY to CLAY	115	1.5	30	26	-	-	3.1	9.9	43	2.75	15	-	-
28.71	56.7	48.5	-	56.6	3.2	-1.0	5.9	3	silty CLAY to CLAY	115	1.5	38	32	-	-	3.9	9.9	39	2.68	15	-	-
28.87	68.3	58.2	-	68.3	4.1	-0.9	6.1	3	silty CLAY to CLAY	115	1.5	46	39	-	-	4.7	9.9	37	2.64	15	-	-
29.04	80.6	72.1	185.9	80.5	3.4	-1.6	4.3	4	clayy SILT to silty CLAY	115	2.0	40	36	-	-	5.6	9.9	29	2.46	15	0.00	0.0
29.20	60.3	53.9	169.9	60.3	2.7	-1.7	4.6	4	clayy SILT to silty CLAY	115	2.0	30	27	-	-	4.2	9.9	34	2.57	15	0.00	0.0
29.36	58.0	51.8	105.4	58.0	1.1	-1.8	2.0	5	silty SAND to sandy SILT	120	4.0	15	13	45	36	-	-	24	2.33	16	2.24	42.2
29.53	43.9	36.9	-	43.9	2.4	-1.6	5.7	3	silty CLAY to CLAY	115	1.5	29	25	-	-	3.0	9.9	43	2.75	15	-	-
29.69	90.8	80.6	213.3	90.6	4.4	-10.4	4.9	4	clayy SILT to silty CLAY	115	2.0	45	40	-	-	6.3	9.9	30	2.48	15	0.00	0.0
29.86	163.8	145.2	248.8	163.6	6.0	-10.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.8	9.9	20	2.22	16	0.00	0.0
30.02	147.6	130.6	262.5	147.4	6.6	-10.4	4.6	9	very stiff fine SOIL	120	2.0	74	65	76	42	-	-	23	2.32	30	0.00	0.0
30.19	151.5	133.8	255.9	151.3	6.4	-10.4	4.3	9	very stiff fine SOIL	120	2.0	76	67	77	42	-	-	22	2.29	30	0.00	0.0
30.35	144.2	127.1	246.1	144.0	6.0	-10.3	4.2	9	very stiff fine SOIL	120	2.0	72	64	75	41	-	-	22	2.30	30	0.00	0.0
30.51	121.7	107.1	216.2	121.5	4.7	-10.2	3.9	9	very stiff fine SOIL	120	2.0	61	54	69	41	-	-	23	2.32	30	0.00	0.0
30.68	88.8	78.0	187.1	88.6	3.5	-10.0	4.1	4	clayy SILT to silty CLAY	115	2.0	44	39	-	-	6.2	9.9	27	2.42	15	0.00	0.0
30.84	61.6	54.0	154.0	61.4	2.3	-9.9	3.9	4	clayy SILT to silty CLAY	115	2.0	31	27	-	-	4.3	9.9	31	2.52	15	0.37	1.6

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

The Estates at Ranch Maria

Project ID: Geosolutions
Data File: SDF(442).cpt
CPT Date: 5/13/2016 7:39:05 AM
GW During Test: 12 ft

Sounding ID: CPT-04
Project No: SB00666-1
Cone/Rig: DDG1268

. Depth ft	. qc PS tsf	* qcln PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	46.3	37.6	-	46.1	1.6	-9.8	3.6	4	clayy SILT to silty CLAY	115	2.0	23	19	-	-	3.2	9.9	36	2.61	15	-	-
31.17	53.0	42.9	-	52.8	3.2	-9.7	6.2	3	silty CLAY to CLAY	115	1.5	35	29	-	-	3.7	9.9	43	2.74	15	-	-
31.33	87.4	76.2	231.7	87.2	5.0	-10.0	5.9	9	very stiff fine SOIL	120	2.0	44	38	58	39	-	-	33	2.55	30	0.00	0.0
31.50	175.3	152.6	331.5	175.1	10.0	-9.9	5.8	9	very stiff fine SOIL	120	2.0	88	76	81	42	-	-	25	2.36	30	0.00	0.0
31.66	345.6	300.2	424.9	345.4	13.8	-9.9	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.8	9.9	15	2.08	16	0.00	0.0
31.83	398.8	345.9	425.4	398.6	12.0	-9.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.3	9.9	11	1.94	16	0.00	0.0
31.99	598.9	518.5	557.4	598.7	13.8	-8.6	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	39.6	9.9	7	1.76	16	0.00	0.0
32.15	604.5	522.5	559.4	604.3	13.7	-9.3	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	40.0	9.9	7	1.75	16	0.00	0.0
32.32	598.0	516.0	577.9	597.8	16.1	-8.9	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	39.5	9.9	9	1.82	16	0.00	0.0
32.48	566.6	488.1	577.5	566.4	18.0	-8.0	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	37.5	9.9	10	1.89	16	0.00	0.0
32.65	448.8	385.9	512.3	448.6	17.6	-7.0	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	29.6	9.9	14	2.02	16	0.00	0.0
32.81	401.8	344.9	491.4	401.7	17.5	-6.6	4.4	9	very stiff fine SOIL	120	2.0	100	100	95	46	-	-	15	2.08	30	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

APPENDIX B

Laboratory Testing

Soil Test Reports

LABORATORY TESTING

This appendix includes a discussion of the test procedures and the laboratory test results performed as part of this investigation. The purpose of the laboratory testing is to assess the engineering properties of the soil materials at the Site. The laboratory tests are performed using the currently accepted test methods, when applicable, of the American Society for Testing and Materials (ASTM).

Undisturbed and disturbed bulk samples used in the laboratory tests are obtained from various locations during the course of the field exploration, as discussed in **Appendix A** of this report. Each sample is identified by sample letter and depth. The Unified Soils Classification System is used to classify soils according to their engineering properties. The various laboratory tests performed are described below:

Expansion Index of Soils (ASTM D4829-03) is conducted in accordance with the ASTM test method and the California Building Code Standard, and are performed on representative bulk and undisturbed soil samples. The purpose of this test is to evaluate expansion potential of the site soils due to fluctuations in moisture content. The sample specimens are placed in a consolidometer, surcharged under a 144-psf vertical confining pressure, and then inundated with water. The amount of expansion is recorded over a 24-hour period with a dial indicator. The expansion index is calculated by determining the difference between final and initial height of the specimen divided by the initial height.

Laboratory Compaction Characteristics of Soil Using Modified Effort (ASTM D1557-07) is performed to determine the relationship between the moisture content and density of soils and soil-aggregate mixtures when compacted in a standard size mold with a 10-lbf hammer from a height of 18 inches. The test is performed on a representative bulk sample of bearing soil near the estimated footing depth. The procedure is repeated on the same soil sample at various moisture contents sufficient to establish a relationship between the maximum dry unit weight and the optimum water content for the soil. The data, when plotted, represents a curvilinear relationship known as the moisture density relations curve. The values of optimum water content and modified maximum dry unit weight can be determined from the plotted curve.

Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318-00) are the water contents at certain limiting or critical stages in cohesive soil behavior. The liquid limit (LL or W_L) is the lower limit of viscous flow, the plastic limit (PL or W_P) is the lower limit of the plastic stage of clay and plastic index (PI or I_P) is a range of water content where the soil is plastic. The Atterberg Limits are performed on samples that have been screened to remove any material retained on a No. 40 sieve. The liquid limit is determined by performing trials in which a portion of the sample is spread in a brass cup, divided in two by a grooving tool, and then allowed to flow together from the shocks caused by repeatedly dropping the cup in a standard mechanical device. To determine the Plastic Limit a small portion of plastic soil is alternately pressed together and rolled into a 1/8-inch diameter thread. This process is continued until the water content of the sample is reduced to a point at which the thread crumbles and can no longer be pressed together and re-rolled. The water content of the soil at this point is reported as the plastic limit. The plasticity index is calculated as the difference between the liquid limit and the plastic limit.

Direct Shear Tests of Soils Under Consolidated Drained Conditions (ASTM D3080-04) is performed on undisturbed and remolded samples representative of the foundation material. The samples are loaded with a predetermined normal stress and submerged in water until saturation is achieved. The samples are then sheared horizontally at a controlled strain rate allowing partial drainage. The shear stress on the sample is recorded at regular strain intervals. This test determines the resistance to deformation, which is

shear strength, inter-particle attraction or cohesion c, and resistance to interparticle slip called the angle of internal friction ϕ.

Particle Size Analysis of Soils (ASTM D422-63R02) is used to determine the particle-size distribution of fine and coarse aggregates. In the test method the sample is separated through a series of sieves of progressively smaller openings for determination of particle size distribution. The total percentage passing each sieve is reported and used to determine the distribution of fine and coarse aggregates in the sample.

One-Dimensional Consolidation Properties of Soils Using Incremental Loading (ASTM D2435-04) is used to determine the magnitude and rate of consolidation of a soil by applying a series of load increments to an undisturbed soil sample and recording sample deformation at selected time intervals. In this test method, a soil specimen is restrained laterally and drained axially while subjected to incrementally applied controlled-stress loading. Each stress increment is maintained until excess pore water pressures are completely dissipated. During the consolidation process, measurements are made of the change in the specimen height and this data is used to determine the relationship between the effective stress and void-ratio or strain, and the rate at which consolidation can occur by evaluating the coefficient of consolidation. The data from the consolidation test is used to estimate the magnitude and rate of both differential and total settlement of a structure or earth-fill.

GeoSolutions, Inc.	SOILS REPORT	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	May 18, 2016
Client:				Project #:	SB00666-1
Sample:	A	Depth:	1.0 Foot	Lab #:	699
Location:	B-10			Sample Date:	April 26, 2016
				Sampled By:	BB/JAP

Soil Classification
ASTM D2487, D2488

Result:	Dark Yellowish Brown Sandy SILT with Clay
Specification:	ML

Sieve Analysis
ASTM D422

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	100	
No. 8	99	
No. 16	99	
No. 30	99	
No. 50	85	
No. 100	70	
No. 200	61.8	

Sand Equivalent Cal 217

1		SE
2		
3		
4		

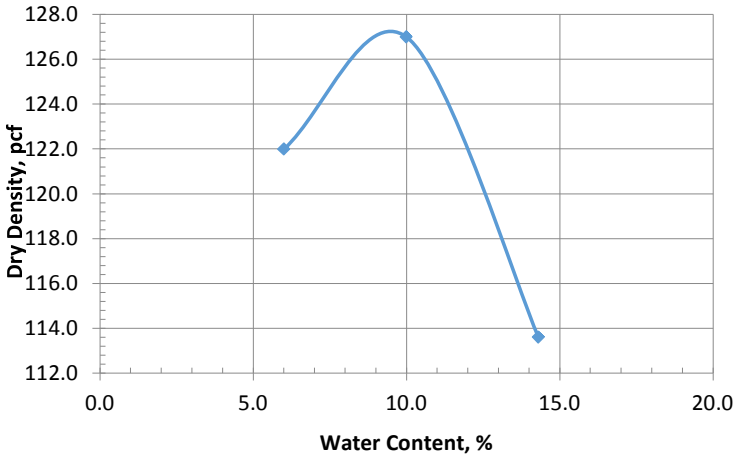
Plasticity Index
ASTM D4318

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829

Expansion Index:	**0**
Expansion Potential:	Very Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve = 2.57

Trial #	1	2	3	4
Water Content:	6.0	10.0	14.3	
Dry Density:	122.0	127.0	113.6	

Maximum Dry Density, pcf:	**127.3**
Optimum Water Content, %:	**9.5**

Moisture-Density ASTM D2937, **Moisture Content** ASTM D2216

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description

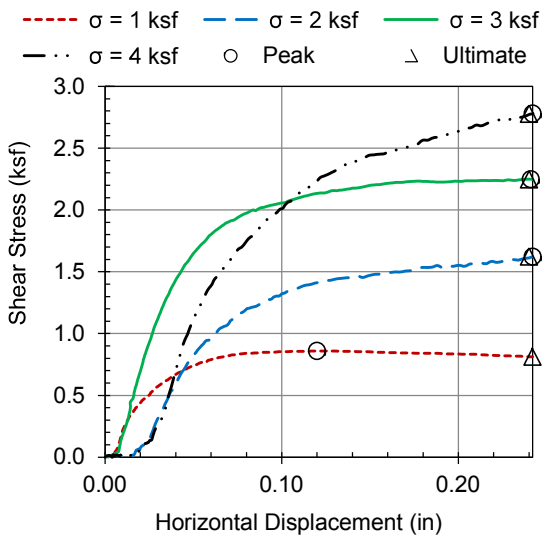
Report By: Aaron Eichman

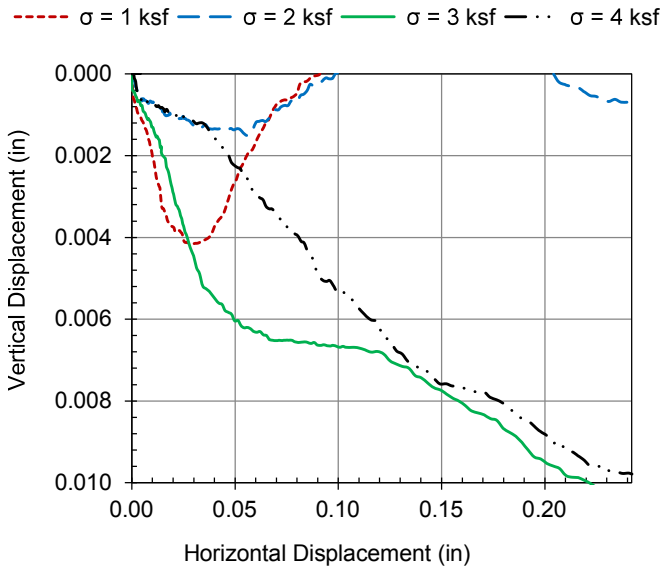
GeoSolutions, Inc.	DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)	(805) 543-8539

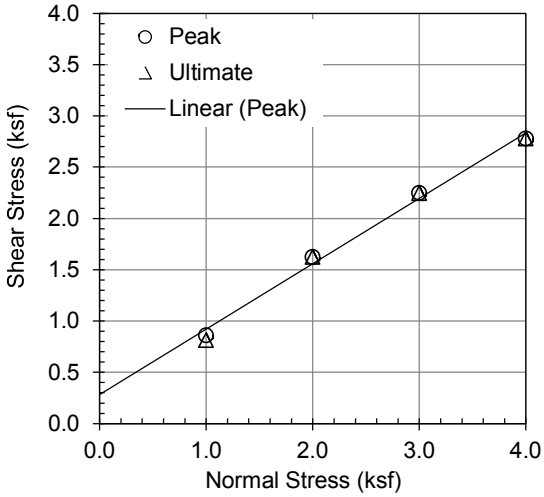
Project:	The Estates at Rancho Maria		Project No.: SB00666-1
Client:			Date Tested: 5/31/2016
Sample No.:	A	Depth: 1.0 Foot	Lab No.: 699
Location:	B-10		Checked By: AE

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Dark Yellowish Brown Sandy SILT with Clay	nm	nm	nm	nm	2.57	remolded

* Gs = assumed; nm = not measured







Initial Conditions	Specimen No. 1	2	3	4
Dry Density	112.7	112.7	112.7	112.7
Water Content (%)	11.5	11.5	11.5	11.5
Diameter (in)	2.42	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00	1.00

Test Data	Specimen No. 1	2	3	4
Normal Stress (ksf)	1.00	2.00	3.00	4.00
Peak Shear Stress (ksf)	0.86	1.62	2.25	2.78
Horiz. Displacenent at Peak Shear (in)	0.12	0.24	0.24	0.24
Ultimate Shear Stress (ksf)	0.81	1.62	2.25	2.78
Horiz. Displ. at Ult. Shear (in)	0.242	0.240	0.240	0.240
Rate of Deformation (in/min)	0.0242	0.0242	0.0243	0.0241

Angle of Internal Friction, ϕ_{peak} (degrees):	**32.5**
Cohesion, C_{peak} (psf)	**283**

Remarks:

Samples were remolded

GeoSolutions, Inc.	SOILS REPORT	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	May 18, 2016
Client:				Project #:	SB00666-1
Sample:	B	Depth:	4.0 Feet	Lab #:	699
Location:	B-10			Sample Date:	April 26, 2016
				Sampled By:	BB/JAP

Soil Classification
ASTM D2487, D2488

Result: Yellowish Brown Silty SAND

Specification: SM

Sieve Analysis
ASTM D422

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	100	
No. 8	100	
No. 16	99	
No. 30	97	
No. 50	68	
No. 100	32	
No. 200	22.6	

Sand Equivalent Cal 217

1		SE
2		
3		
4		

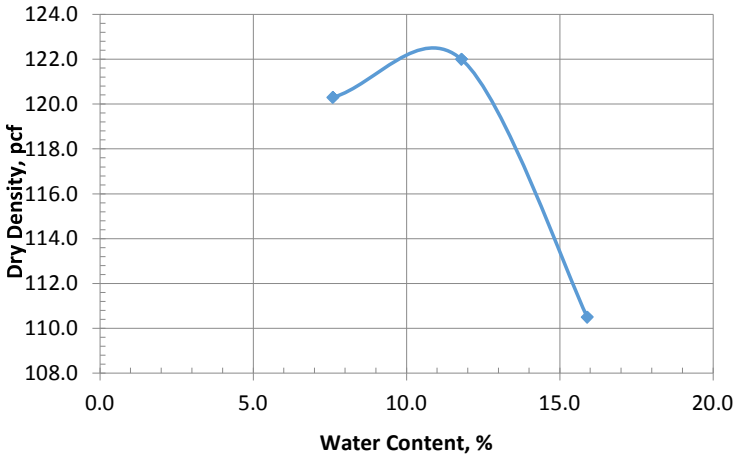
Plasticity Index
ASTM D4318

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829

Expansion Index:	**4**
Expansion Potential:	Very Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve = 2.56

Trial #	1	2	3	4
Water Content:	7.6	11.8	15.9	
Dry Density:	120.3	122.0	110.5	

Maximum Dry Density, pcf:	**122.5**
Optimum Water Content, %:	**10.9**

Moisture-Density ASTM D2937, **Moisture Content** ASTM D2216

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description

Report By: Aaron Eichman

GeoSolutions, Inc.	SOILS REPORT	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	May 20, 2016
Client:				Project #:	SB00666-1
Sample:	C	Depth:	1.0 Foot	Lab #:	699
Location:	B-6			Sample Date:	April 26, 2016
				Sampled By:	BB/JAP

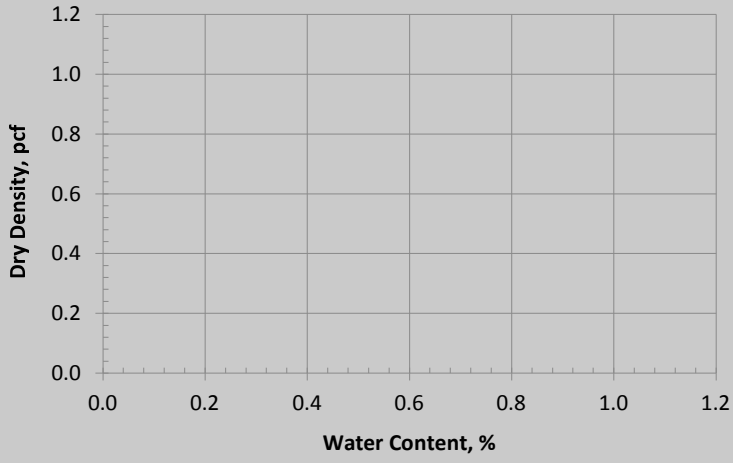
Soil Classification
ASTM D2487, D2488

Result:	Very Dark Brown Sandy SILT
Specification:	ML

Sieve Analysis
ASTM D422

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	100	
No. 8	100	
No. 16	99	
No. 30	98	
No. 50	88	
No. 100	76	
No. 200	61.7	

Laboratory Maximum Density
ASTM D1557



Sand Equivalent Cal 217

1		SE
2		
3		
4		

Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Plasticity Index
ASTM D4318

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Estimated Specific Gravity for 100% Saturation Curve =

Trial #	1	2	3	4
Water Content:				
Dry Density:				

Maximum Dry Density, pcf:	
Optimum Water Content, %:	

Expansion Index
ASTM D4829

Expansion Index:	**0**
Expansion Potential:	Very Low
Initial Saturation, %:	50

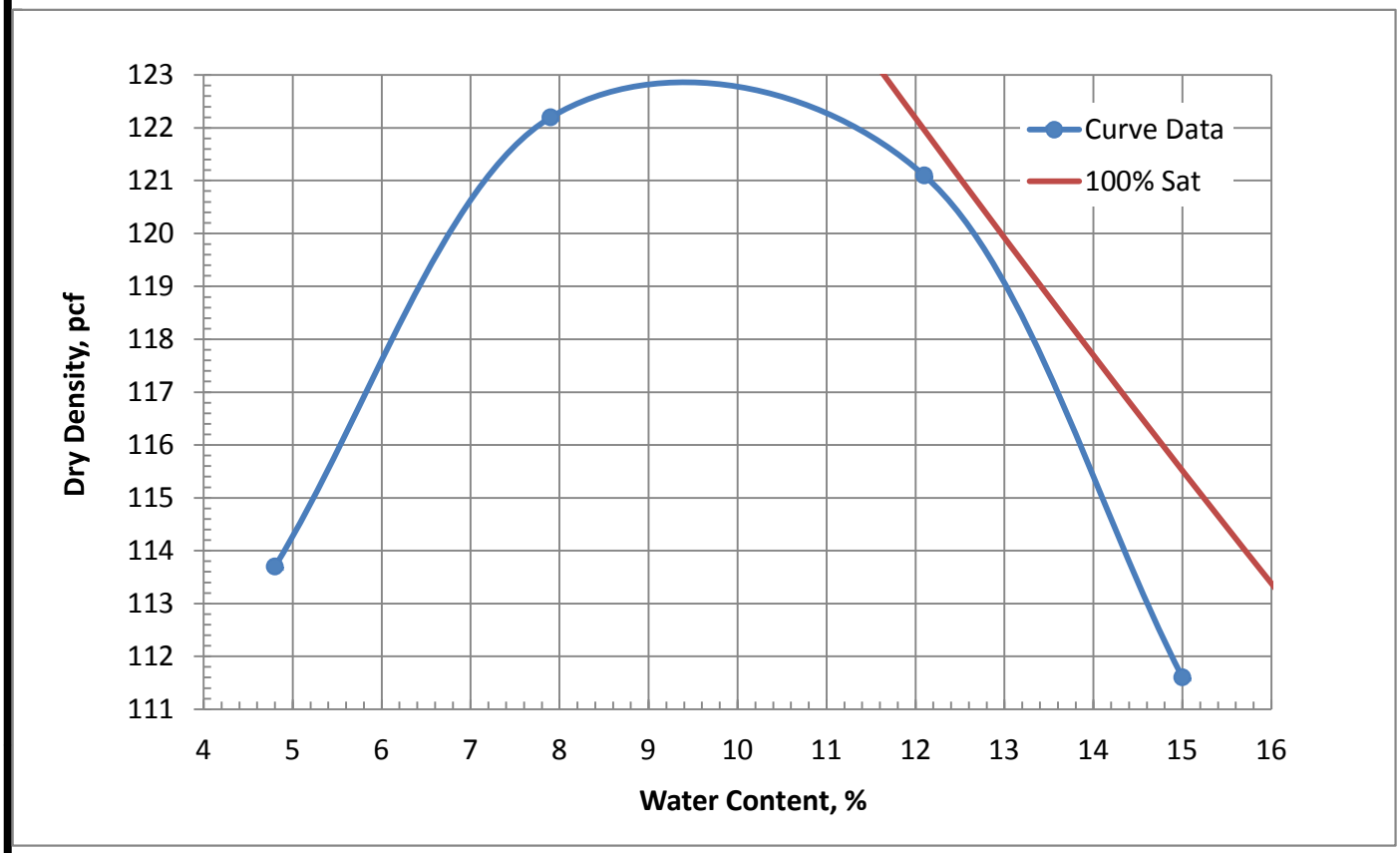
Moisture-Density ASTM D2937, **Moisture Content** ASTM D2216

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description

Report By: Aaron Eichman

GeoSolutions, Inc.	LAB COMPACTION REPORT ASTM D1557	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	May 19, 2016
Client:				Project #:	SB00666-1
Sample #:	D	Depth:	10.0 Feet	Lab #:	699
Source:	B-6			Sample Date:	April 26, 2016
Material:	Dark Yellowish Brown Clayey SAND			Sampled By:	BB/JAP



ASTM Test Designation: [ ] D 698 [x] D 1557
Method (sieve size): [ ] A (#4) [x] B (3/8") [ ] C (3/4")
% Passing, Pf: _____ *% Retained, Pc:* _____ [x] Estimated [ ] Measured
Type of Rammer: [x] Mechanical [ ] Manual
Preparation Method [x] Moist [ ] Dry
100% Saturation Curve-Estimated Gs: 2.55

Laboratory Test Results

Trial #	1	2	3	4
Water Content,%	4.8	7.9	12.1	15.0
Dry Density, pcf	113.7	122.2	121.1	111.6

MAXIMUM DRY DENSITY, pcf:	122.9	OPTIMUM MOISTURE, %:	9.4

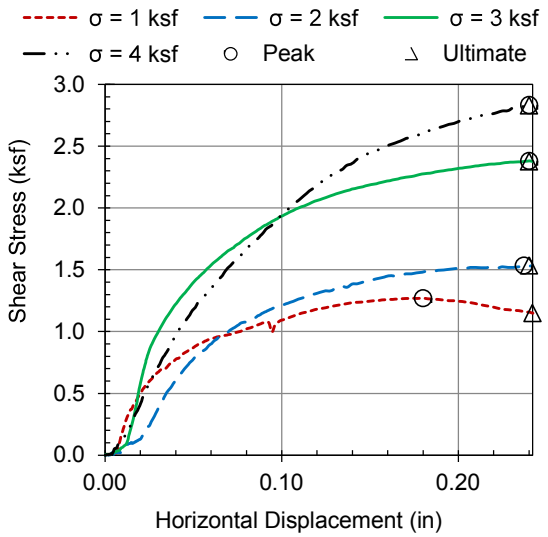
Report By: Aaron Eichman

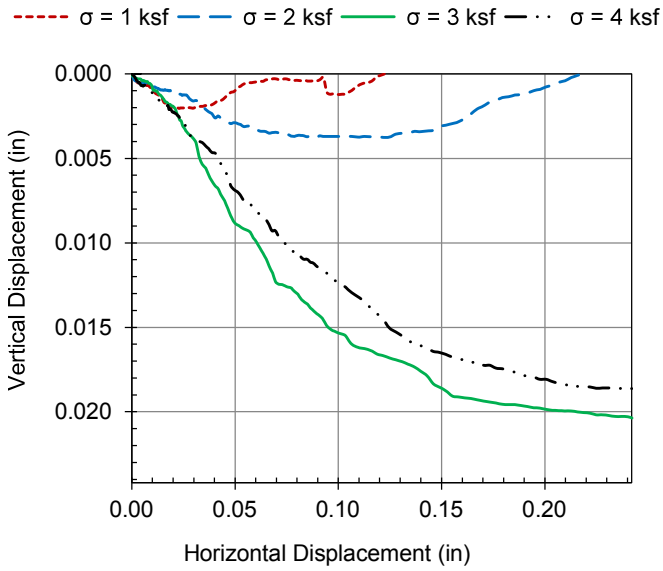
GeoSolutions, Inc.	DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)	(805) 543-8539

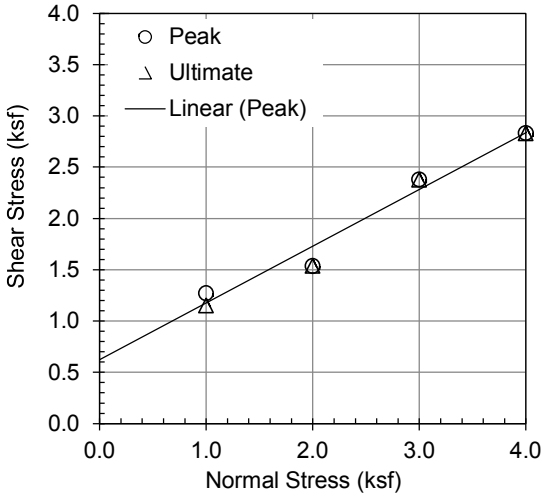
Project:	The Estates at Rancho Maria			Project No.:	SB00666-1
Client:				Date Tested:	5/31/2016
Sample No.:	D	Depth:	10.0 Feet	Lab No.:	699
Location:	B-6			Checked By:	BB/JAP

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Dark Yellowish Brown Clayey SAND	nm	nm	nm	nm	2.55	remolded

* Gs = assumed; nm = not measured







Angle of Internal Friction, ϕ_{peak} (degrees):	**28.9**
Cohesion, C_{peak} (psf)	**622**

Initial Conditions	Specimen No. 1	2	3	4
Dry Density	108.8	108.8	108.8	108.8
Water Content (%)	11.4	11.4	11.4	11.4
Diameter (in)	2.42	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00	1.00

Test Data	Specimen No. 1	2	3	4
Normal Stress (ksf)	1.00	2.00	3.00	4.00
Peak Shear Stress (ksf)	1.27	1.53	2.38	2.83
Horiz. Displacenent at Peak Shear (in)	0.18	0.24	0.24	0.24
Ultimate Shear Stress (ksf)	1.15	1.53	2.38	2.83
Horiz. Displ. at Ult. Shear (in)	0.24	0.24	0.24	0.24
Rate of Deformation (in/min)	0.024	0.024	0.024	0.024

Remarks:

Samples were remolded

GeoSolutions, Inc.	SOILS REPORT	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	May 20, 2016
Client:				Project #:	SB00666-1
Sample:	E	Depth:	4.0 Feet	Lab #:	699
Location:	B-2			Sample Date:	April 26, 2016
				Sampled By:	BB/JAP

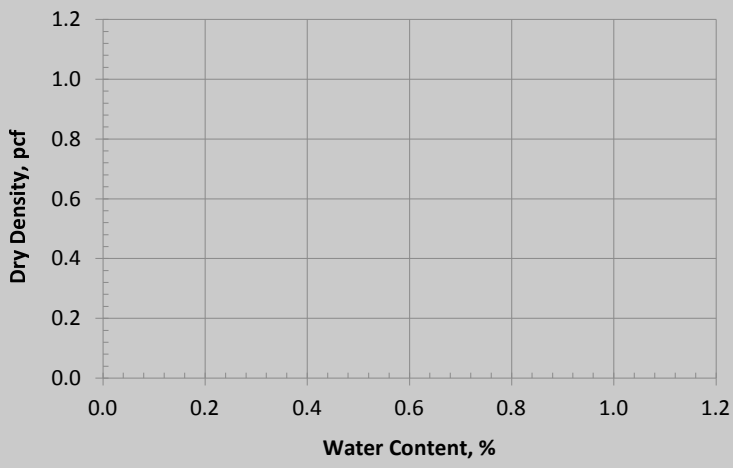
Soil Classification
ASTM D2487, D2488

Result:	Dark Yellowish Brown Silty SAND with Gravel
Specification:	SM

Sieve Analysis
ASTM D422

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	75	
No. 8	70	
No. 16	66	
No. 30	61	
No. 50	49	
No. 100	37	
No. 200	23.3	

Laboratory Maximum Density
ASTM D1557



Sand Equivalent Cal 217

1		SE
2		
3		
4		

Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Plasticity Index
ASTM D4318

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Estimated Specific Gravity for 100% Saturation Curve =

Trial #	1	2	3	4
Water Content:				
Dry Density:				

Maximum Dry Density, pcf:	
Optimum Water Content, %:	

Expansion Index
ASTM D4829

Expansion Index:	**0**
Expansion Potential:	Very Low
Initial Saturation, %:	50

Moisture-Density ASTM D2937, **Moisture Content** ASTM D2216

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description

Report By: Aaron Eichman

GeoSolutions, Inc. (805) 543-8539

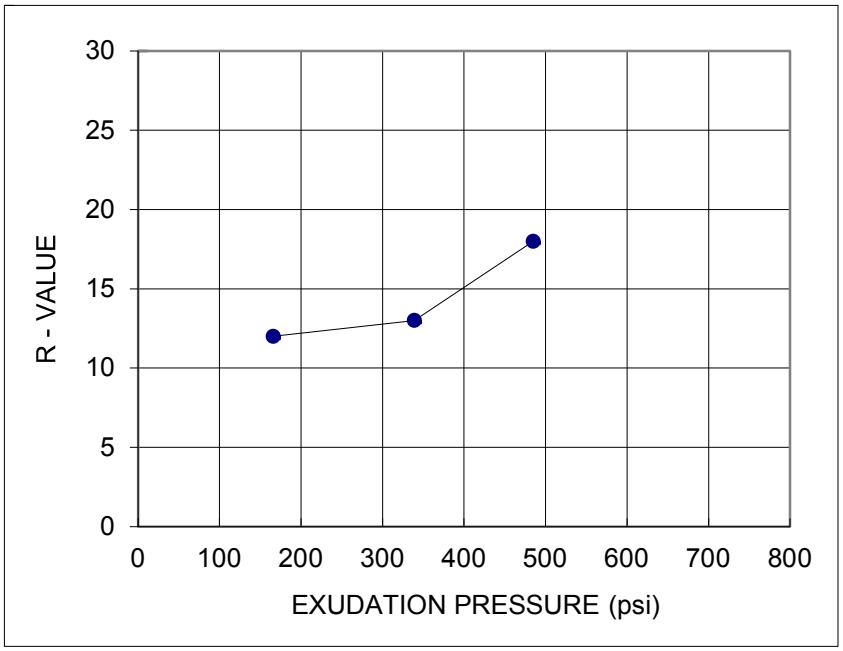
Project:	The Estates at Rancho Maria	Date Tested:	5/19/2016
Client:		Project #:	SB00666-1
Sample #:	F Depth: 1.0 to 4.0 Feet	Lab #:	699
Location:	B-1	Sample Date:	4/26/2016
Material:	Dark Gray Clayey SAND	Sampled By:	BB/JAP

Sieve Analysis CTM 202

Sieve Size	Percent Passing	Specs
2"		
1-1/2"		
1"		
3/4"		
1/2"		
3/8"		
1/4"		
#4	89	
#8	86	
#16	84	
#30	80	
#50	70	
#100	57	
#200	43	

Additional Tests		
Sand Equivalent CTM 217		
Result		Min. __ Req't
Durability Index CTM 229		
Fine Durability		
Coarse Durability		
Result		Min. __ Req't

R-Value Test CTM 301



Specimen No.	A	B	C
Exudation Pressure, psi	166	339	485
Expansion Pressure, psf	4	9	22
R-Value	12	13	18
Moisture Content at Test, %	14.7	13.5	12.5
Dry Density at Test, pcf	113.8	117.3	119.1
Expansion Pressure @300 psi Exud'n, psf =			
R-Value @ 300 psi Exudation Pressure =		**12**	

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc. (805) 543-8539

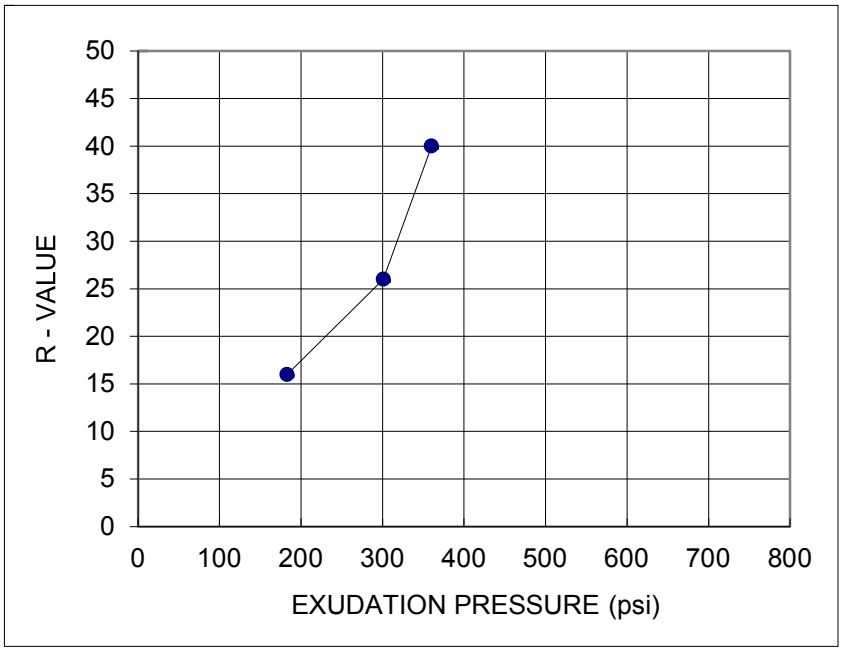
Project:	The Estates at Rancho Maria	Date Tested:	5/19/2016
Client:		Project #:	SB00666-1
Sample #:	G Depth: 1.0 to 9.0 Feet	Lab #:	699
Location:	B-5	Sample Date:	4/26/2016
Material:	Brown Silty SAND	Sampled By:	BB/JAP

Sieve Analysis CTM 202

Sieve Size	Percent Passing	Specs
2"		
1-1/2"		
1"		
3/4"		
1/2"		
3/8"		
1/4"		
#4	100	
#8	99	
#16	99	
#30	97	
#50	74	
#100	51	
#200	36.8	

Additional Tests		
Sand Equivalent CTM 217		
Result		Min. __ Req't
Durability Index CTM 229		
Fine Durability		
Coarse Durability		
Result		Min. __ Req't

R-Value Test CTM 301



Specimen No.	A	B	C
Exudation Pressure, psi	183	301	360
Expansion Pressure, psf	0	0	0
R-Value	16	26	40
Moisture Content at Test, %	12.7	11.7	10.6
Dry Density at Test, pcf	121.6	124	124.8
Expansion Pressure @300 psi Exud'n, psf =			
R-Value @ 300 psi Exudation Pressure =		**25**	

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc.	SIEVE ANALYSIS REPORT ASTM D422-63R07	(805) 543-8539

Project:	The Estates at Rancho Maria		Date Tested:	May 19, 2016
Client:			Project #:	SB00666-1
Sample #:	B-5 @ 3'	Depth: 3.0 Feet	Lab #:	699
Location:	B-5		Sample Date:	April 26, 2016
Material:	Brownish Gray Sandy SILT		Sampled By:	BB/JAP

Soil Classification
ASTM D2487-06, D2488-06

Soil Description:	**Brownish Gray Sandy SILT**
Specification:	**ML**

Sieve Analysis

U.S. Standard Sieve	Percent Passing TOTAL	Project Specifications	Remarks
3"			
2"			
1 1/2"			
1"			
3/4"			
3/8"			
No. 4	100		
No. 8	100		
No. 16	99		
No. 30	98		
No. 50	80		
No. 100	67		
No. 200	60.0		

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc.	SIEVE ANALYSIS REPORT ASTM D422-63R07	(805) 543-8539

Project:	The Estates at Rancho Maria		Date Tested:	May 19, 2016
Client:			Project #:	SB00666-1
Sample #:	B-5 @ 9'	Depth: 9.0 Feet	Lab #:	699
Location:	B-5		Sample Date:	April 26, 2016
Material:	Brownish Gray Silty SAND		Sampled By:	BB/JAP

Soil Classification
ASTM D2487-06, D2488-06

Soil Description:	**Brownish Gray Silty SAND**
Specification:	**SM**

Sieve Analysis

U.S. Standard Sieve	Percent Passing TOTAL	Project Specifications	Remarks
3"			
2"			
1 1/2"			
1"			
3/4"			
3/8"			
No. 4	98		
No. 8	98		
No. 16	97		
No. 30	96		
No. 50	76		
No. 100	58		
No. 200	43.3		

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc.	SIEVE ANALYSIS REPORT ASTM D422-63R07	(805) 543-8539

Project:	The Estates at Rancho Maria		Date Tested:	May 19, 2016
Client:			Project #:	SB00666-1
Sample #:	B-5 @ 14'	Depth: 14.0 Feet	Lab #:	699
Location:	B-5		Sample Date:	April 26, 2016
Material:	Brownish Gray Silty SAND		Sampled By:	BB/JAP

Soil Classification
ASTM D2487-06, D2488-06

Soil Description:	**Brownish Gray Silty SAND**
Specification:	**SM**

Sieve Analysis

U.S. Standard Sieve	Percent Passing TOTAL	Project Specifications	Remarks
3"			
2"			
1 1/2"			
1"			
3/4"			
3/8"			
No. 4	100		
No. 8	99		
No. 16	99		
No. 30	98		
No. 50	81		
No. 100	61		
No. 200	44.2		

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc.	SIEVE ANALYSIS REPORT ASTM D422-63R07	(805) 543-8539

Project:	The Estates at Rancho Maria		Date Tested:	May 19, 2016
Client:			Project #:	SB00666-1
Sample #:	B-5 @ 19'	Depth: 19.0 Feet	Lab #:	699
Location:	B-5		Sample Date:	April 26, 2016
Material:	Yellowish Brown Silty SAND		Sampled By:	BB/JAP

Soil Classification
ASTM D2487-06, D2488-06

Soil Description:	**Yellowish Brown Silty SAND**
Specification:	**SM**

Sieve Analysis

U.S. Standard Sieve	Percent Passing TOTAL	Project Specifications	Remarks
3"			
2"			
1 1/2"			
1"			
3/4"			
3/8"			
No. 4	97		
No. 8	96		
No. 16	95		
No. 30	93		
No. 50	80		
No. 100	61		
No. 200	41.3		

Comments:

Report By: Aaron Eichman

GeoSolutions, Inc.	SIEVE ANALYSIS REPORT ASTM D422-63R07	(805) 543-8539

Project:	The Estates at Rancho Maria		Date Tested:	May 19, 2016
Client:			Project #:	SB00666-1
Sample #:	B-10 @ 9'	Depth: 9.0 Feet	Lab #:	699
Location:	B-10		Sample Date:	April 26, 2016
Material:	Brown Silty SAND		Sampled By:	BB/JAP

Soil Classification
ASTM D2487-06, D2488-06

Soil Description:	**Brown Silty SAND**
Specification:	**SM**

Sieve Analysis

U.S. Standard Sieve	Percent Passing TOTAL	Project Specifications	Remarks
3"			
2"			
1 1/2"			
1"			
3/4"			
3/8"			
No. 4	99		
No. 8	97		
No. 16	96		
No. 30	94		
No. 50	64		
No. 100	43		
No. 200	32.0		

Comments:

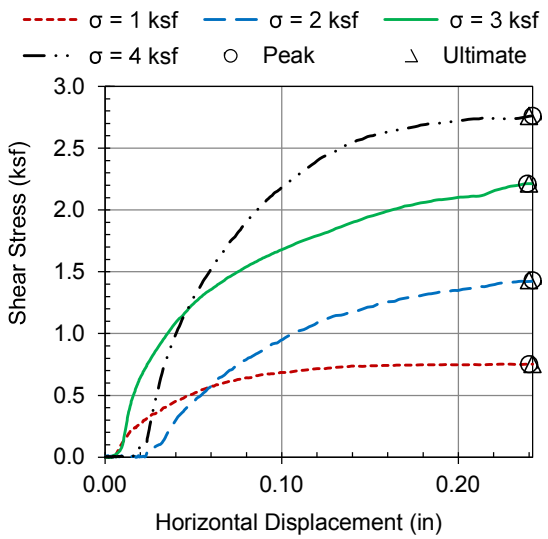
Report By: Aaron Eichman

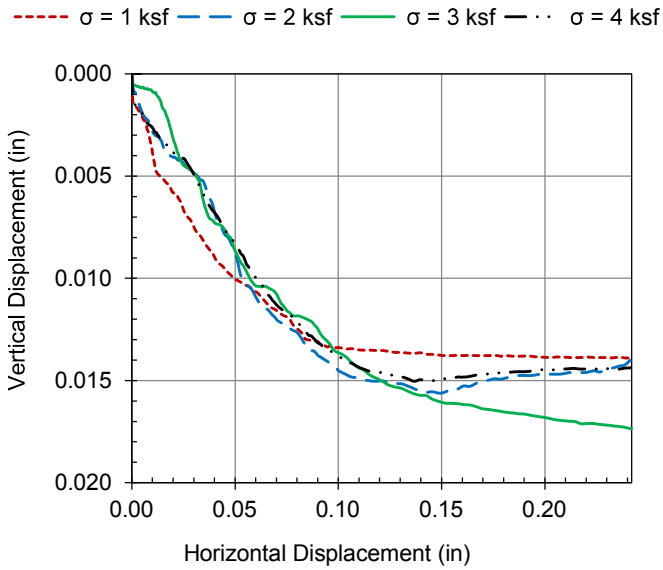
GeoSolutions, Inc.	DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)	(805) 543-8539

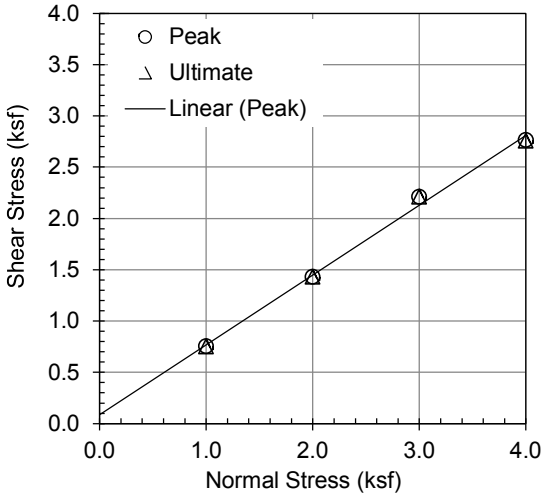
Project:	The Estates at Rancho Maria	Project No.:	SB00666-1
Client:		Date Tested:	5/17/2016
Sample No.:	B-1 @ 4' Depth: 4.0 Feet	Lab No.:	699
Location:	B-1	Checked By:	AE

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Very Dark Grayish Brown Silty SAND with Gravel	nm	nm	nm	nm	2.65	in-situ (rings)

* Gs = assumed; nm = not measured







Initial Conditions	Specimen No. 1	2	3	4
Dry Density	107.0	109.5	108.6	122.4
Water Content (%)	6.7	6.7	6.7	6.7
Diameter (in)	2.42	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00	1.00

Test Data	Specimen No. 1	2	3	4
Normal Stress (ksf)	1.00	2.00	3.00	4.00
Peak Shear Stress (ksf)	0.75	1.43	2.21	2.76
Horiz. Displacenent at Peak Shear (in)	0.24	0.24	0.24	0.24
Ultimate Shear Stress (ksf)	0.75	1.43	2.21	2.76
Horiz. Displ. at Ult. Shear (in)	0.24	0.24	0.24	0.24
Rate of Deformation (in/min)	0.001	0.001	0.001	0.001

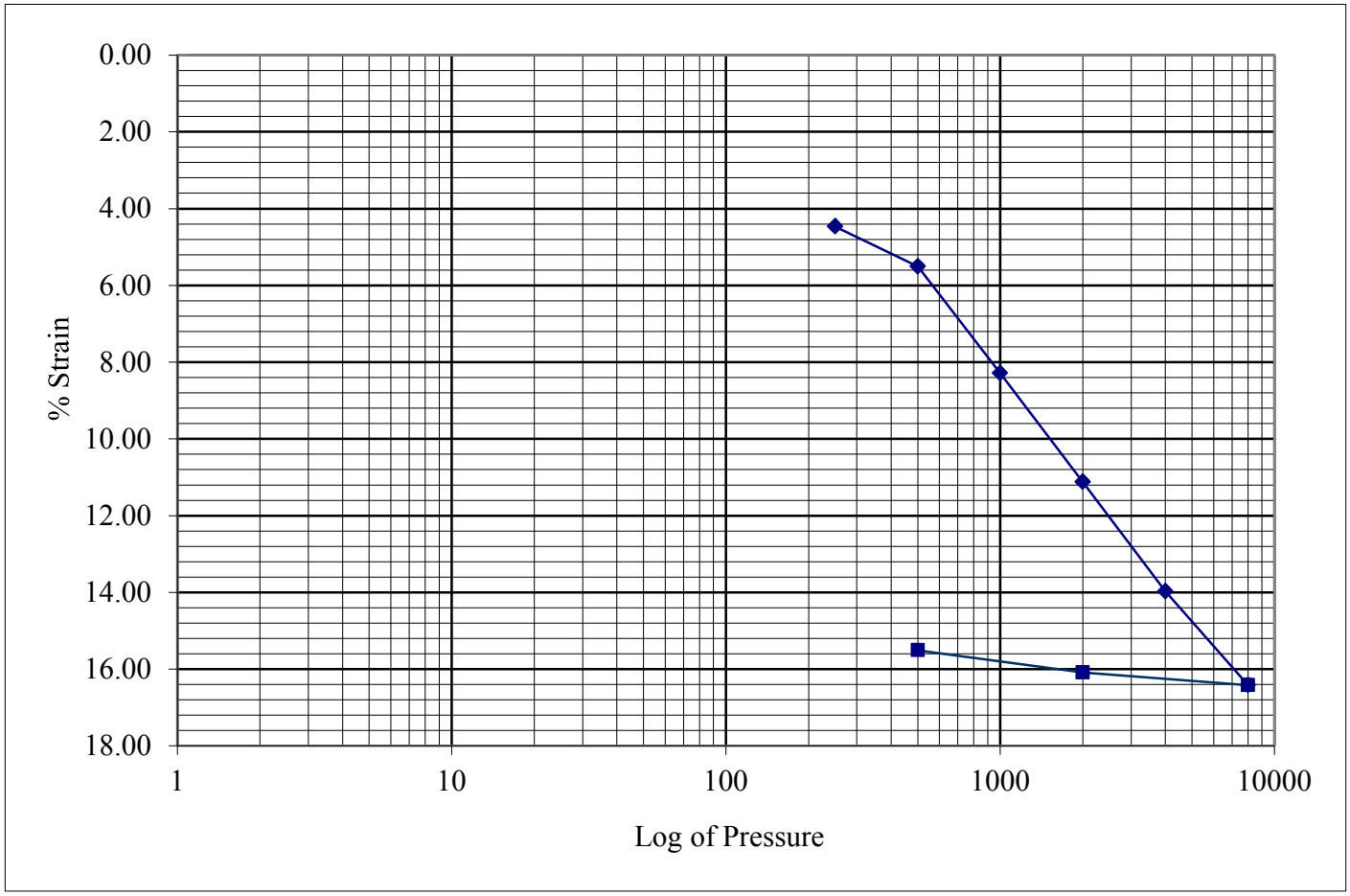
Angle of Internal Friction, ϕ_{peak} (degrees):	**34.2**
Cohesion, C_{peak} (psf)	**88**

Remarks:

Samples were saturated prior to shearing

GeoSolutions, Inc.	CONSOLIDATION REPORT D2435-11	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	5/16/2016
Client:				Project #:	SB00666-1
Sample:	B-1 @ 4'	Depth:	4.0 Feet	Lab #:	699
Location:	B-1			Sample Date:	4/26/2016
Material:	Very Dark Grayish Brown Silty SAND with Gravel			Sampled By:	BB/JAP



Applied Pressure (psf)	% Strain
250	4.47
500	5.51
1000	8.29
2000	11.12
4000	13.97
8000	16.42
2000	16.09
500	15.51

Compression Index, Cc
0.118
Recompression Index, Cr
0.012

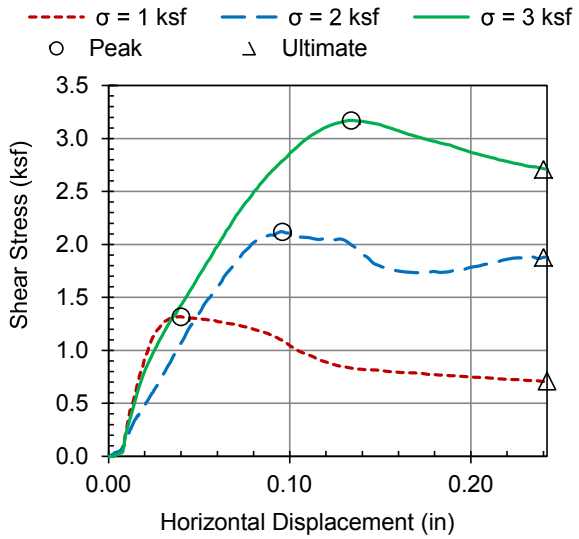
Report By: Aaron Eichman

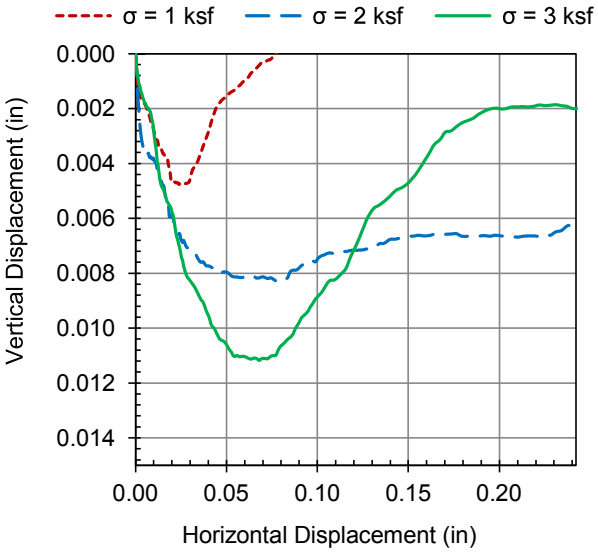
GeoSolutions, Inc.	DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)	(805) 543-8539

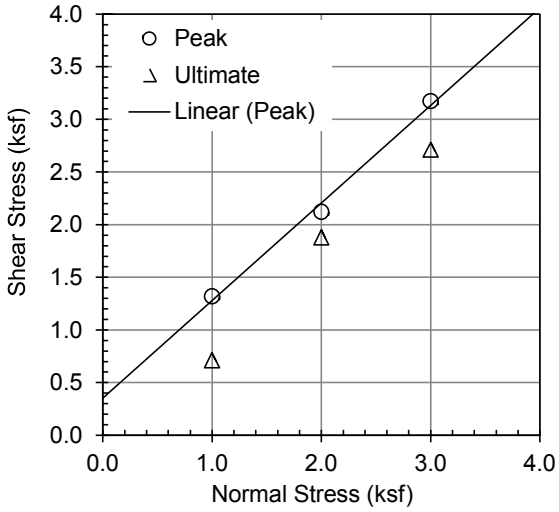
Project:	The Estates at Rancho Maria				Project No.: SB00666-1
Client:					Date Tested: 5/31/2016
Sample No.:	B-4 @ 9'	Depth:	9.0 Feet		Lab No.: 699
Location:	B-4				Checked By: BB/JAP

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Light Olive Brown Clayey SAND	nm	nm	nm	nm	2.55	in-situ (rings)

* Gs = assumed; nm = not measured







Angle of Internal Friction, ϕ_{peak} (degrees):	**42.8**
Cohesion, C_{peak} (psf)	**353**

Initial Conditions	Specimen No. 1	Specimen No. 2	Specimen No. 3
Dry Density	112.2	111.7	111.9
Water Content (%)	10.2	10.2	10.2
Diameter (in)	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00

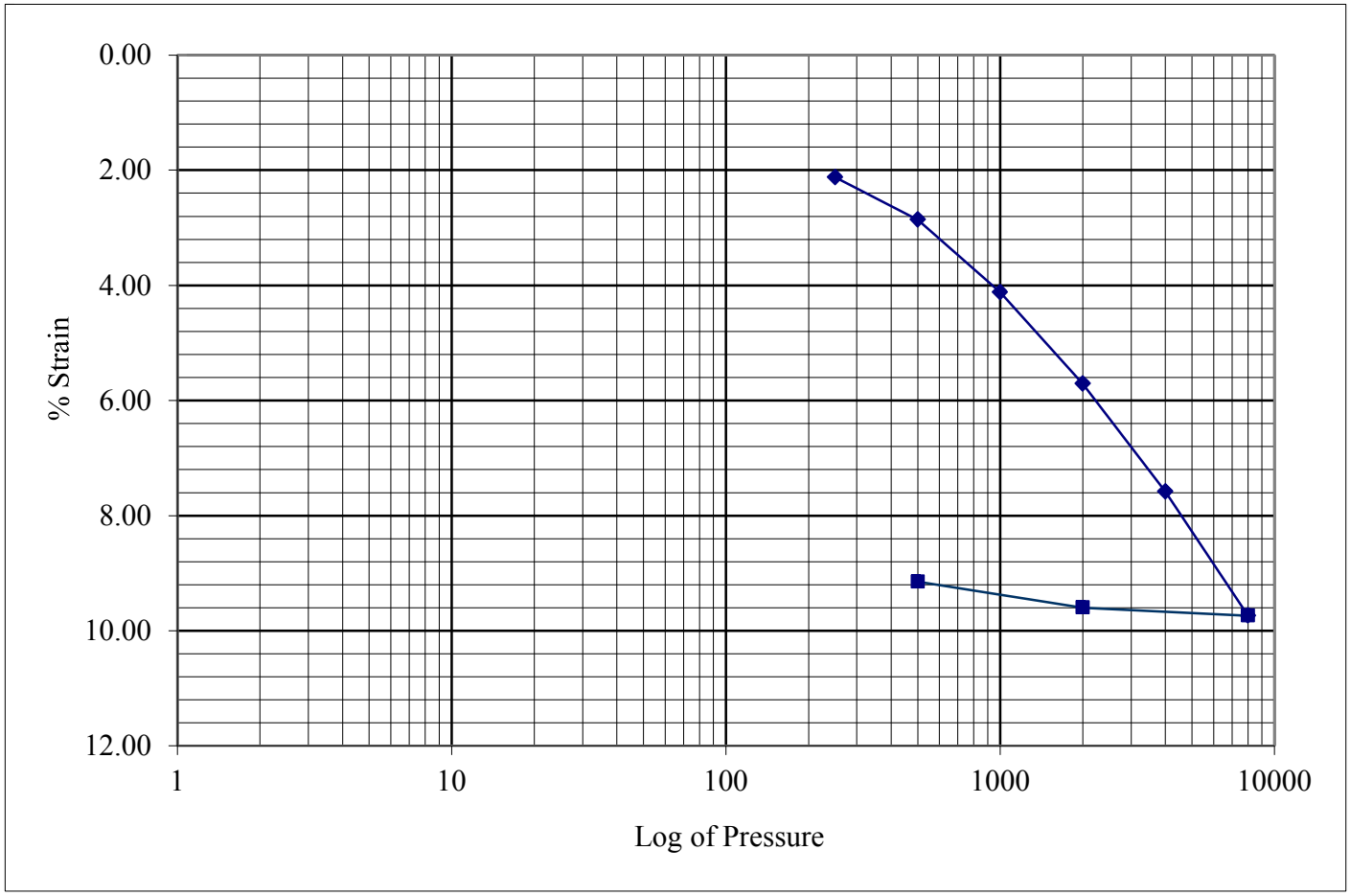
Test Data	Specimen No. 1	Specimen No. 2	Specimen No. 3
Normal Stress (ksf)	1.00	2.00	3.00
Peak Shear Stress (ksf)	1.32	2.12	3.17
Horiz. Displacenent at Peak Shear (in)	0.04	0.10	0.13
Ultimate Shear Stress (ksf)	0.71	1.88	2.71
Horiz. Displ. at Ult. Shear (in)	0.24	0.24	0.24
Rate of Deformation (in/min)	0.024	0.024	0.024

Remarks:

Samples were not saturated prior to shearing

GeoSolutions, Inc.	CONSOLIDATION REPORT D2435-11	(805) 543-8539

Project:	The Estates at Rancho Maria			Date Tested:	5/13/2016
Client:				Project #:	SB00666-1
Sample:	B-10 @ 9'	Depth:	9 Feet	Lab #:	699
Location:	B-10			Sample Date:	4/26/2016
Material:	Dark Yellowish Brown Silty SAND			Sampled By:	BB/JAP



Applied Pressure (psf)	% Strain
250	2.12
500	2.86
1000	4.12
2000	5.71
4000	7.58
8000	9.74
2000	9.60
500	9.15

Compression Index, Cc
0.073
Recompression Index, Cr
0.007

Report By: Aaron Eichman

APPENDIX C

USGS Design Map Summary

USGS Detailed Report

USGS Design Maps Summary Report

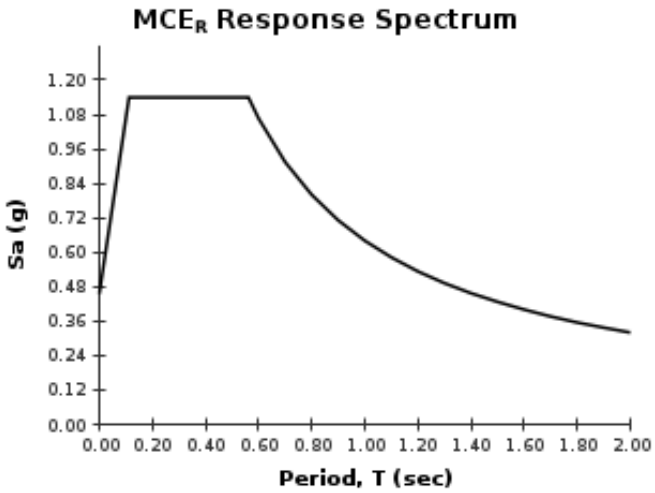
User–Specified Input

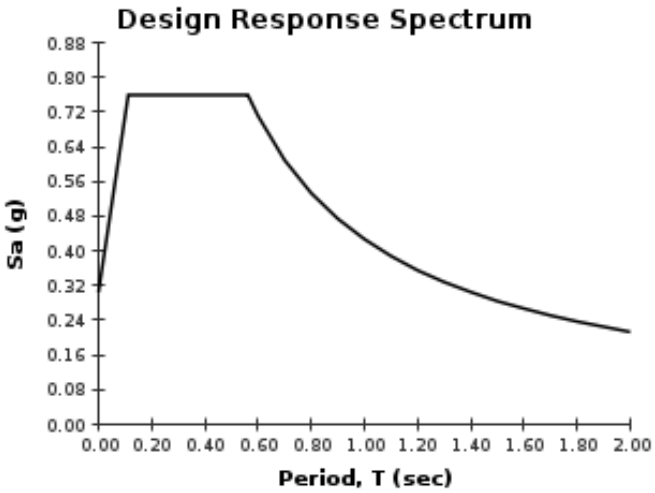
Report Title	The Estates at Rancho Maria Sun June 5, 2016 22:43:34 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.8699°N, 120.4831°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

USGS–Provided Output

S_S =	1.057 g	S_{MS} =	1.139 g	S_{DS} =	0.759 g
S_1 =	0.400 g	S_{M1} =	0.640 g	S_{D1} =	0.427 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.8699°N, 120.4831°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] S_S = 1.057 g

From Figure 22-2 [2] S_1 = 0.400 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_S = 1.057 g, F_a = 1.077

Table 11.4–2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1–s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.400 g, F_v = 1.600

Equation (11.4–1): $S_{MS} = F_a S_S = 1.077 \times 1.057 = 1.139$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.600 \times 0.400 = 0.640$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

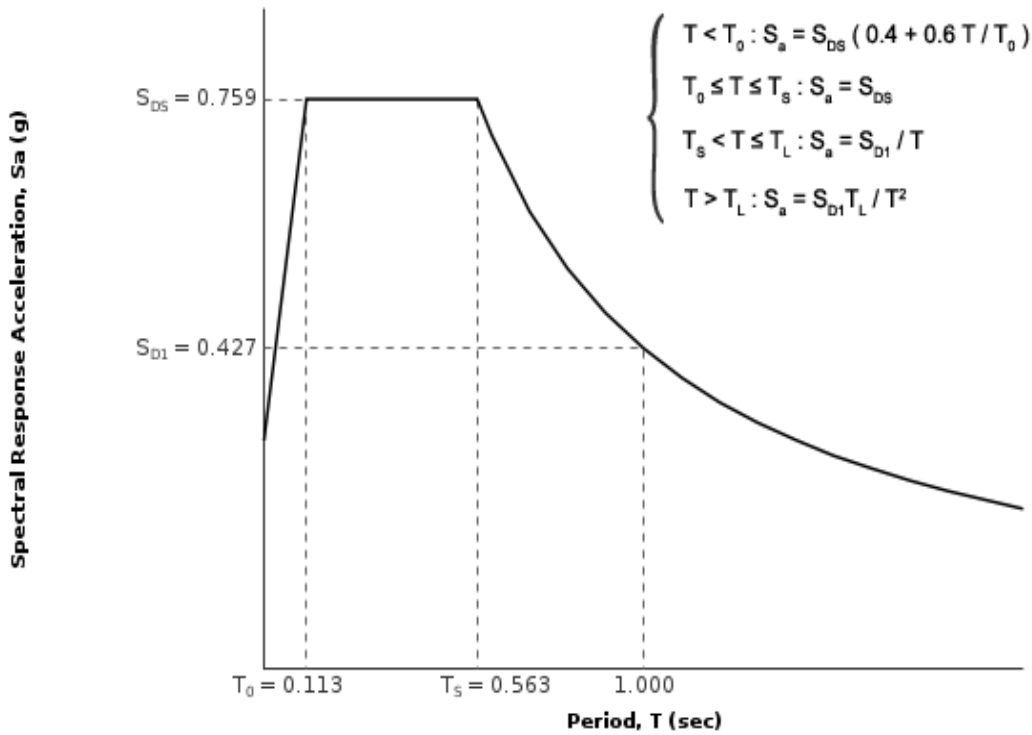
Equation (11.4–3): $S_{DS} = ⅔\ S_{MS} = ⅔ \times 1.139 = 0.759$ g

Equation (11.4–4): $S_{D1} = ⅔\ S_{M1} = ⅔ \times 0.640 = 0.427$ g

Section 11.4.5 — Design Response Spectrum

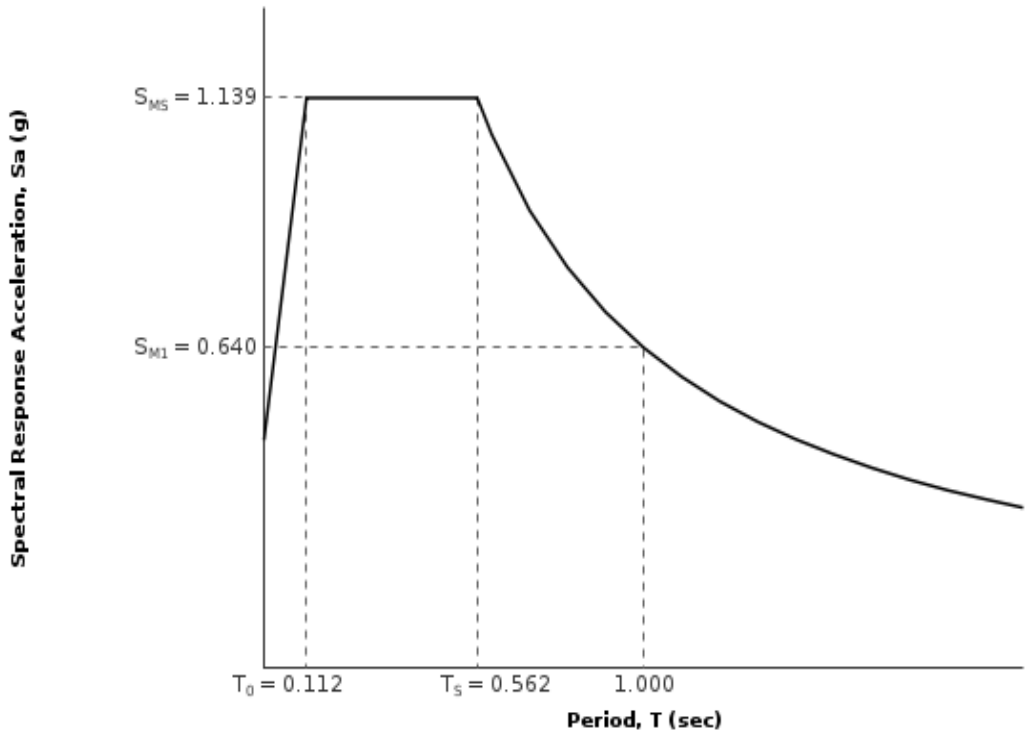
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4-1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.418

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.082 \times 0.418 = 0.453$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.418 g, F_{PGA} = 1.082

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.960

From Figure 22-18 [6] C_{R1} = 1.005

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 0.759 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.427 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

APPENDIX D

Preliminary Grading Specifications

Key and Bench with Backdrain

PRELIMINARY GRADING SPECIFICATIONS

A. General

1. These preliminary specifications have been prepared for the subject site; GeoSolutions, Inc. should be consulted prior to the commencement of site work associated with site development to ensure compliance with these specifications.

2. GeoSolutions, Inc. should be notified at least 72 hours prior to site clearing or grading operations on the property in order to observe the stripping of surface materials and to coordinate the work with the grading contractor in the field.

3. These grading specifications may be modified and/or superseded by recommendations contained in the text of this report and/or subsequent reports.

4. If disputes arise out of the interpretation of these grading specifications, the Soils Engineer shall provide the governing interpretation.

B. Obligation of Parties

1. The Soils Engineer should provide observation and testing services and should make evaluations to advise the client on geotechnical matters. The Soils Engineer should report the findings and recommendations to the client or the authorized representative.

2. The client should be chiefly responsible for all aspects of the project. The client or authorized representative has the responsibility of reviewing the findings and recommendations of the Soils Engineer. During grading the client or the authorized representative should remain on-site or should remain reasonably accessible to all concerned parties in order to make decisions necessary to maintain the flow of the project.

3. The contractor is responsible for the safety of the project and satisfactory completion of all grading and other operations on construction projects, including, but not limited to, earthwork in accordance with project plans, specifications, and controlling agency requirements.

C. Site Preparation

1. The client, prior to any site preparation or grading, should arrange and attend a meeting which includes the grading contractor, the design Structural Engineer, the Soils Engineer, representatives of the local building department, as well as any other concerned parties. All parties should be given at least 72 hours notice.

2. All surface and sub-surface deleterious materials should be removed from the proposed building and pavement areas and disposed of off-site or as approved by the Soils Engineer. This includes, but is not limited to, any debris, organic materials, construction spoils, buried utility line, septic systems, building materials, and any other surface and subsurface structures within the proposed building areas. Trees designated for removal on the construction plans should be removed and their primary root systems grubbed under the observations of a representative of GeoSolutions, Inc. Voids left from site clearing should be cleaned and backfilled as recommended for structural fill.

3. Once the Site has been cleared, the exposed ground surface should be stripped to remove surface vegetation and organic soil. A representative of GeoSolutions, Inc. should determine the required depth of stripping at the time of work being completed. Strippings may either be disposed of off-site or stockpiled for future use in landscape areas, if approved by the landscape architect.

D. Site Protection

1. Protection of the Site during the period of grading and construction should be the responsibility of the contractor.

2. The contractor should be responsible for the stability of all temporary excavations.

3. During periods of rainfall, plastic sheeting should be kept reasonably accessible to prevent unprotected slopes from becoming saturated. Where necessary during periods of rainfall, the contractor should install check-dams, de-silting basins, sand bags, or other devices or methods necessary to control erosion and provide safe conditions.

E. Excavations

1. Materials that are unsuitable should be excavated under the observation and recommendations of the Soils Engineer. Unsuitable materials include, but may not be limited to: 1) dry, loose, soft, wet, organic, or compressible natural soils; 2) fractured, weathered, or soft bedrock; 3) non-engineered fill; 4) other deleterious materials; and 5) materials identified by the Soils Engineer or Engineering Geologist.

2. Unless otherwise recommended by the Soils Engineer and approved by the local building official, permanent cut slopes should not be steeper than 2:1 (horizontal to vertical). Final slope configurations should conform to section 1804 of the 2013 California Building Code unless specifically modified by the Soil Engineer/Engineering Geologist.

3. The Soil Engineer/Engineer Geologist should review cut slopes during excavations. The contractor should notify the Soils Engineer/Engineer Geologist prior to beginning slope excavations.

F. Structural Fill

1. Structural fill should not contain rocks larger than 3 inches in greatest dimension, and should have no more than 15 percent larger than 2.5 inches in greatest dimension.

2. Imported fill should be free of organic and other deleterious material and should have very low expansion potential, with a plasticity index of 12 or less. Before delivery to the Site, a sample of the proposed import should be tested in our laboratory to determine its suitability for use as structural fill.

G. Compacted Fill

1. Structural fill using approved import or native should be placed in horizontal layers, each approximately 8 inches in thickness before compaction. On-site inorganic soil or approved imported fill should be conditioned with water to produce a soil water content near optimum moisture and compacted to a minimum relative density of 90 percent based on ASTM D1557-07.

2. Fill slopes should not be constructed at gradients greater than 2-to-1 (horizontal to vertical). The contractor should notify the Soils Engineer/Engineer Geologist prior to beginning slope excavations.

3. If fill areas are constructed on slopes greater than 10-to-1 (horizontal to vertical), we recommend that benches be cut every 4 feet as fill is placed. Each bench shall be a minimum of 10 feet wide with a minimum of 2 percent gradient into the slope.

4. If fill areas are constructed on slopes greater than 5-to-1, we recommend that the toe of all areas to receive fill be keyed a minimum of 24 inches into underlying dense material. Key depths are to be observed and approved by a representative of GeoSolutions, Inc. Sub-drains shall be placed in the keyway and benches as required.

H. Drainage

1. During grading, a representative of GeoSolutions, Inc. should evaluate the need for a sub-drain or back-drain system. Areas of observed seepage should be provided with sub-surface drains to release the hydrostatic pressures. Sub-surface drainage facilities may include gravel blankets, rock filled trenches or Multi-Flow systems or equal. The drain system should discharge in a non-erosive manner into an approved drainage area.

2. All final grades should be provided with a positive drainage gradient away from foundations. Final grades should provide for rapid removal of surface water runoff. Ponding of water should not be allowed on building pads or adjacent to foundations. Final grading should be the responsibility of the contractor, general Civil Engineer, or architect.

3. Concentrated surface water runoff within or immediately adjacent to the Site should be conveyed in pipes or in lined channels to discharge areas that are relatively level or that are adequately protected against erosion.

4. Water from roof downspouts should be conveyed in solid pipes that discharge in controlled drainage localities. Surface drainage gradients should be planned to prevent ponding and promote drainage of surface water away from building foundations, edges of pavements and sidewalks. For soil areas we recommend that a minimum of 2 percent gradient be maintained.

5. Attention should be paid by the contractor to erosion protection of soil surfaces adjacent to the edges of roads, curbs and sidewalks, and in other areas where hard edges of structures may cause concentrated flow of surface water runoff. Erosion resistant matting such as Miramat, or other similar products, may be considered for lining drainage channels.

6. Sub-drains should be placed in established drainage courses and potential seepage areas. The location of sub-drains should be determined after a review of the grading plan. The sub-drain outlets should extend into suitable facilities or connect to the proposed storm drain system or existing drainage control facilities. The outlet pipe should consist of a non-perforated pipe the same diameter as the perforated pipe.

I. Maintenance

1. Maintenance of slopes is important to their long-term performance. Precautions that can be taken include planting with appropriate drought-resistant vegetation as recommended by a landscape architect, and not over-irrigating, a primary source of surficial failures.

2. Property owners should be made aware that over-watering of slopes is detrimental to long term stability of slopes.

J. Underground Facilities Construction

1. The attention of contractors, particularly the underground contractors, should be drawn to the State of California Construction Safety Orders for "Excavations, Trenches, Earthwork." Trenches or excavations greater than 5 feet in depth should be shored or sloped back in accordance with OSHA Regulations prior to entry.

2. Bedding is defined as material placed in a trench up to 1 foot above a utility pipe and backfill is all material placed in the trench above the bedding. Unless concrete bedding is required around utility pipes, free-draining sand should be used as bedding. Sand to be used as bedding should be tested in our laboratory to verify its suitability and to measure its compaction characteristics. Sand bedding should be compacted by mechanical means to achieve at least 90 percent relative density based on ASTM D1557-07.

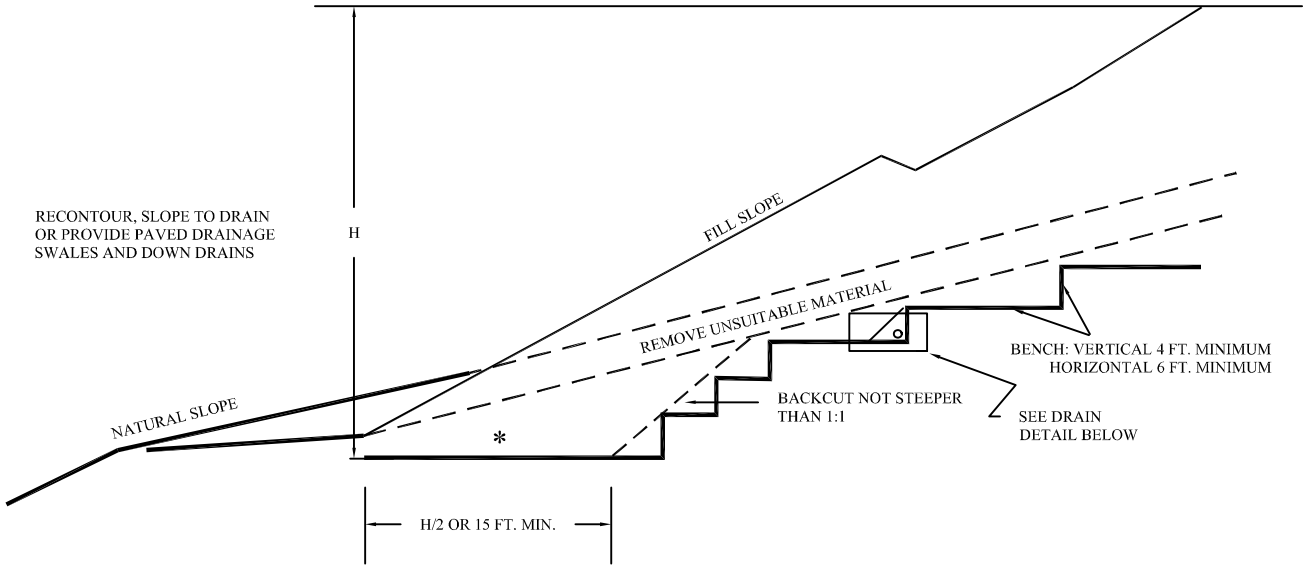
3. On-site inorganic soils, or approved import, may be used as utility trench backfill. Proper compaction of trench backfill will be necessary under and adjacent to structural fill, building foundations, concrete slabs, and vehicle pavements. In these areas, backfill should be conditioned with water (or allowed to dry), to produce a soil water content of about 2 to 3 percent above the optimum value and placed in horizontal layers, each not exceeding 8 inches in thickness before compaction. Each layer should be compacted to at least 90 percent relative density based on ASTM D1557-07. The top lift of trench backfill under vehicle pavements should be compacted to the requirements given in report under Preparation of Paved Areas for vehicle pavement sub-grades. Trench walls must be kept moist prior to and during backfill placement.

K. Completion of Work

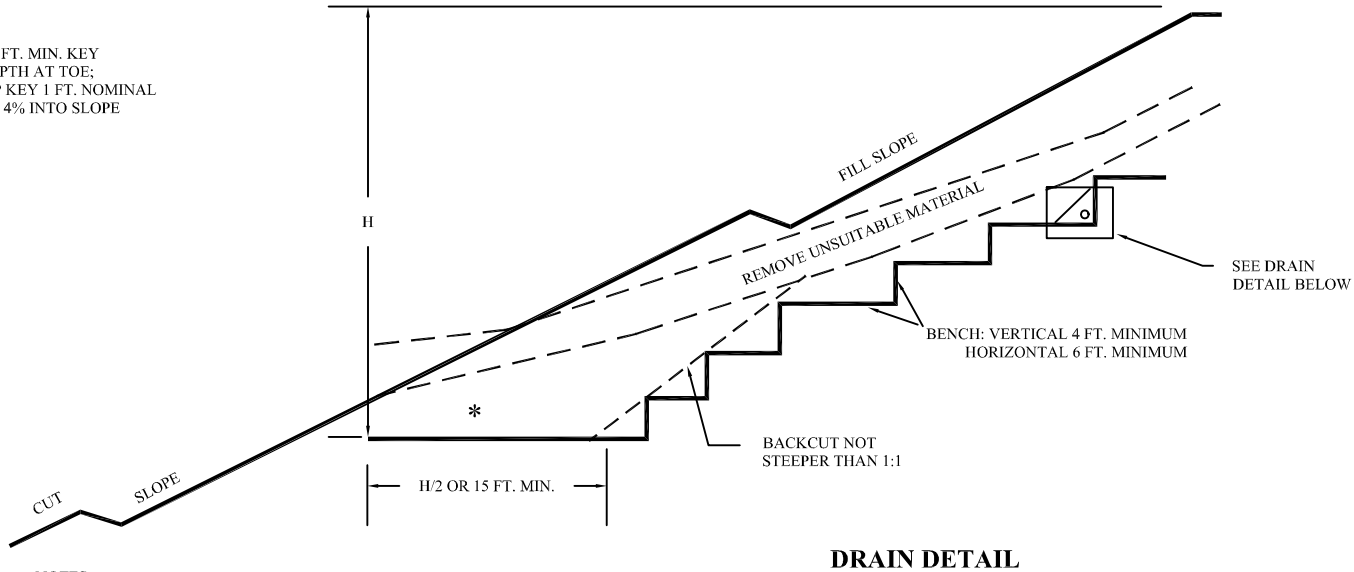
1. After the completion of work, a report should be prepared by the Soils Engineer retained to provide such services. The report should including locations and elevations of field density tests, summaries of field and laboratory tests, other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the approved Soils Engineering Report.

2. Soils Engineers shall submit a statement that, to the best of their knowledge, the work within their area of responsibilities is in accordance with the approved soils engineering report and applicable provisions within Chapter 18 of the 2013 CBC.

FILL OVER NATURAL SLOPE



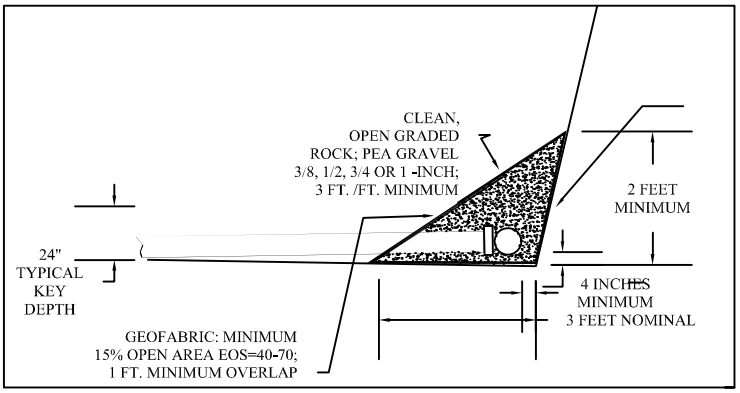
FILL OVER CUT SLOPE



NOTES:
1 - IF OVERFILLING AND CUTTING BACK TO GRADE IS ADOPTED, 15 FT. MIN. FILL WIDTH MAY BE REDUCED TO 12 FT. MIN. IN NO CASE SHOULD THE FILL WIDTH BE LESS THAN 1/2 THE HEIGHT OF FILL REMAINING.

1 - BACKDRAIN AS RECOMMEDNED BY GEOTECHNICAL CONSULTANT PER BUTTRESS BACKDRAIN DETAIL.

DRAIN DETAIL



GeoSolutions, Inc.
220 High Street
San Luis Obispo, CA 93401
(805) 543-8539 Fax: (805) 543-2171

KEY AND BENCH WITH BACKDRAIN

DETAIL
A

APPENDIX E

Liquefaction Analysis

NovoCPT CPT-1

NovoCPT CPT-4

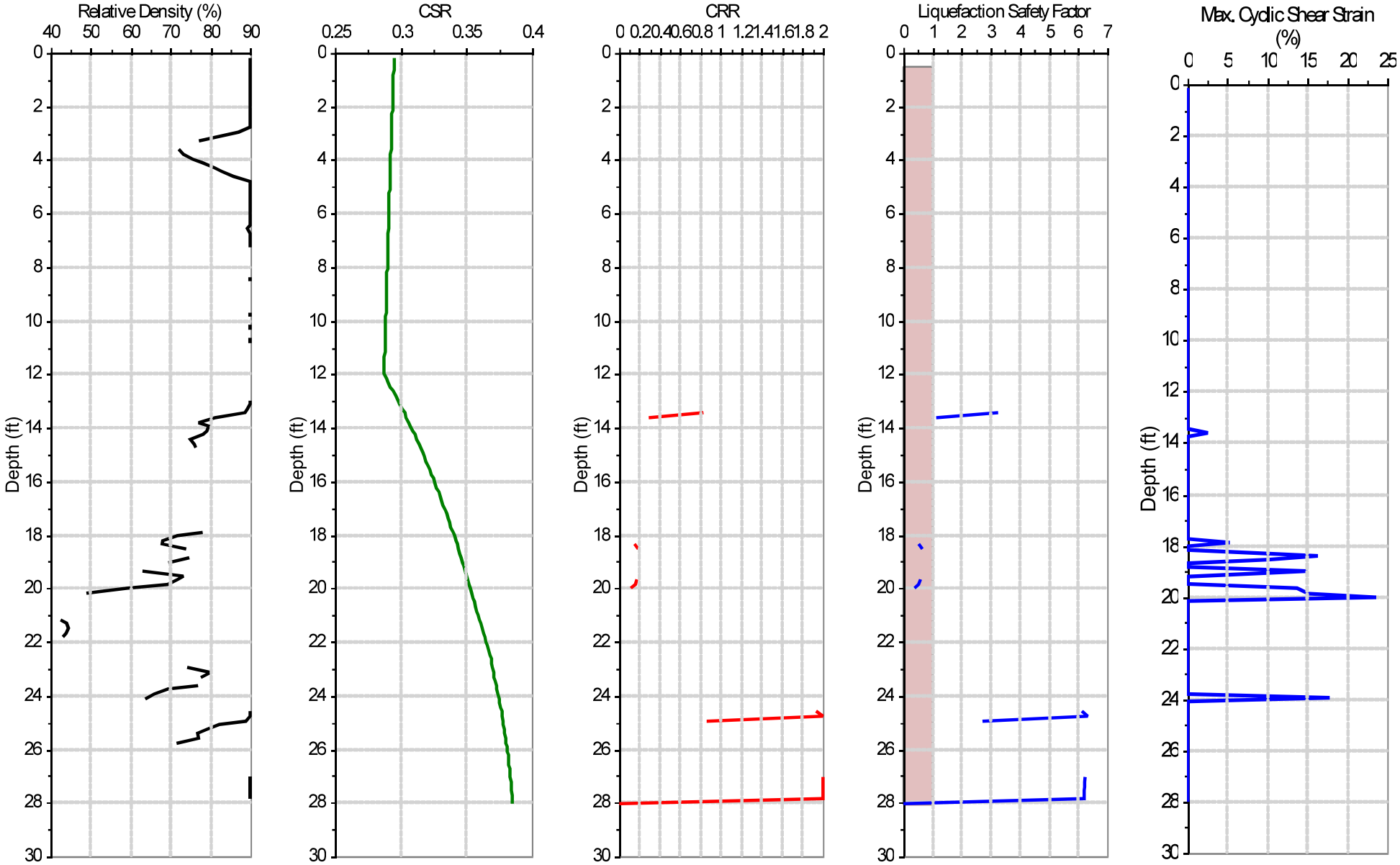
LIQUEFACTION CPT ANALYSIS REPORT

GeoSolutions, inc.

Project : Rancho Maria
Project No. : SB00666-1
Client : Wells
Location : Santa Maria
Notes :

Borehole : CPT-1
Ground Water Level : 12 ft ft
Coordinates : n.a.
Calculated By :
Checked By :

Ground Slope : Gently Sloped 0.5%
PGA = 0.453 gEq. Magnitude M = 7
Cone Area Ratio = 0.8
CPT Max. Depth = 28.21 ft



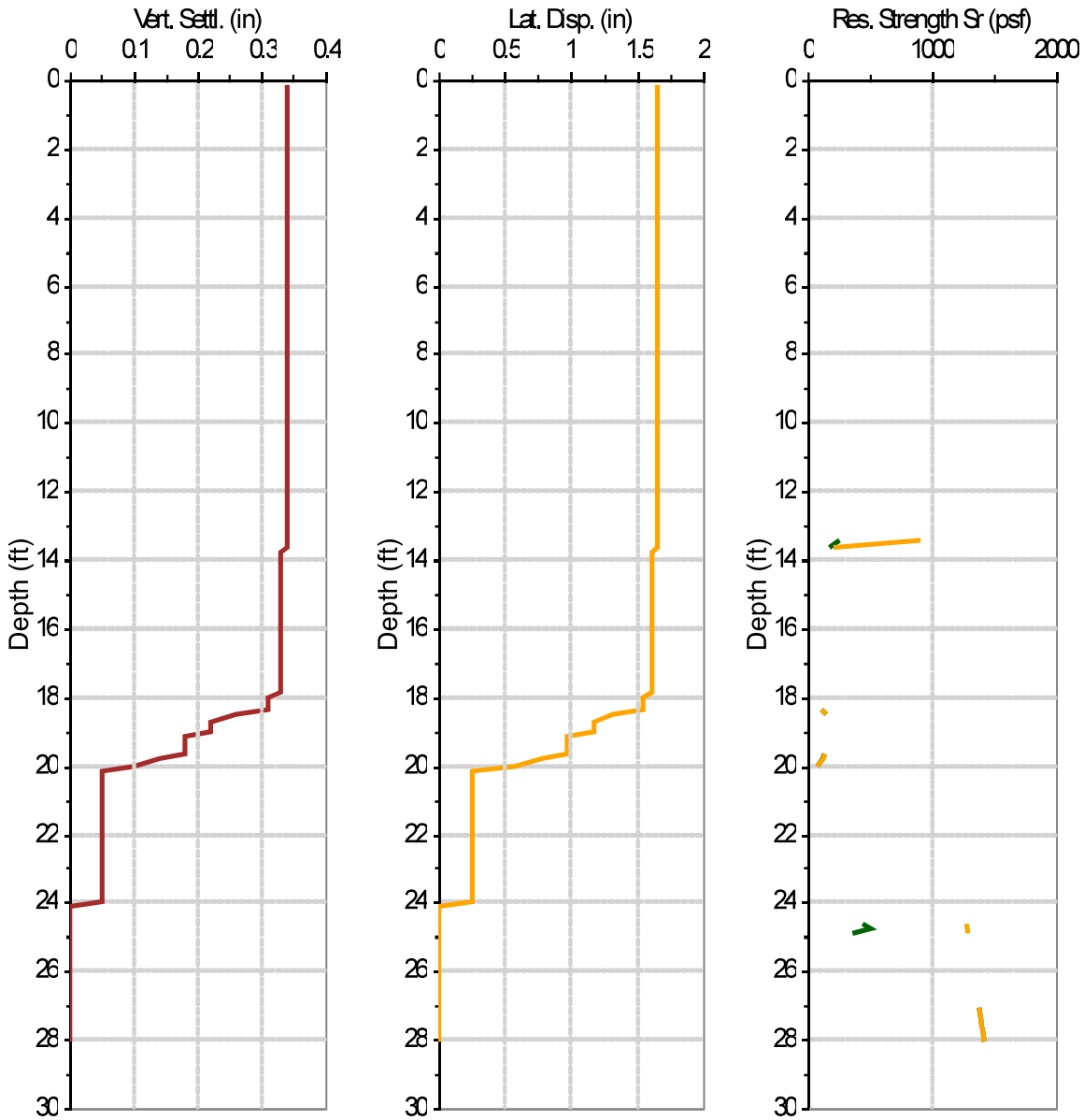
LIQUEFACTION CPT ANALYSIS REPORT

GeoSolutions, inc.

Project : Rancho Maria
Project No. : SB00666-1
Client : Wells
Location : Santa Maria
Notes :

Borehole : CPT-1
Ground Water Level : 12 ft ft
Coordinates : n.a.
Calculated By :
Checked By :

Ground Slope : Gently Sloped 0.5%
PGA = 0.453 gEq. Magnitude M = 7
Cone Area Ratio = 0.8
CPT Max. Depth = 28.21 ft



LIQUEFACTION CPT ANALYSIS REPORT

GeoSolutions, inc.

Project : Rancho Maria
Project No. : SB00666-1
Client : Wells
Location : Santa Maria
Notes :

Borehole : CPT-1
Ground Water Level : 12 ft ft
Coordinates : n.a.
Calculated By :
Checked By :

Ground Slope : Gently Sloped 0.5%
PGA = 0.453 gEq. Magnitude M = 7
Cone Area Ratio = 0.8
CPT Max. Depth = 28.21 ft

:: Current Analysis Settings and Correlations

Apply 2009 Robertson Normalization n :
No

N60 :
Jefferies & Davis 1993

Hydraulic Conductivity K :
Robertson 2010 (equation)

Unit Weight From Rf and qt :
Yes

Shear Wave Velocity Vs :
Mayne 2006c (all soils)

Undrained Shear Strength Su :
use Nk=12.5

Clay Overconsolidation Ratio OCR :
Powell et al. 1998

Sand Overconsolidation Ratio OCR :
Mayne 2005

Clay Friction Angle :
Sunneset et al., 1988 and 1989 (NTH solution)

Sand Friction Angle :
Robertson & Campanella 1983

Clay Young's Modulus Es :
Duncan & Buchihmami 1976

Sand Young's Modulus Es :
Bellotti et al. 1989

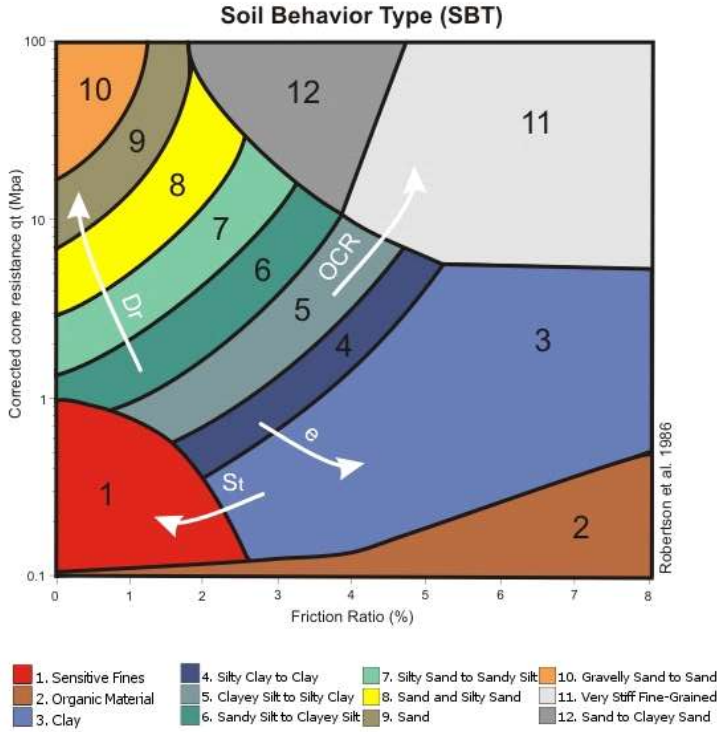
Sand Relative Density Dr :
Jamiolkowski et al. 2001

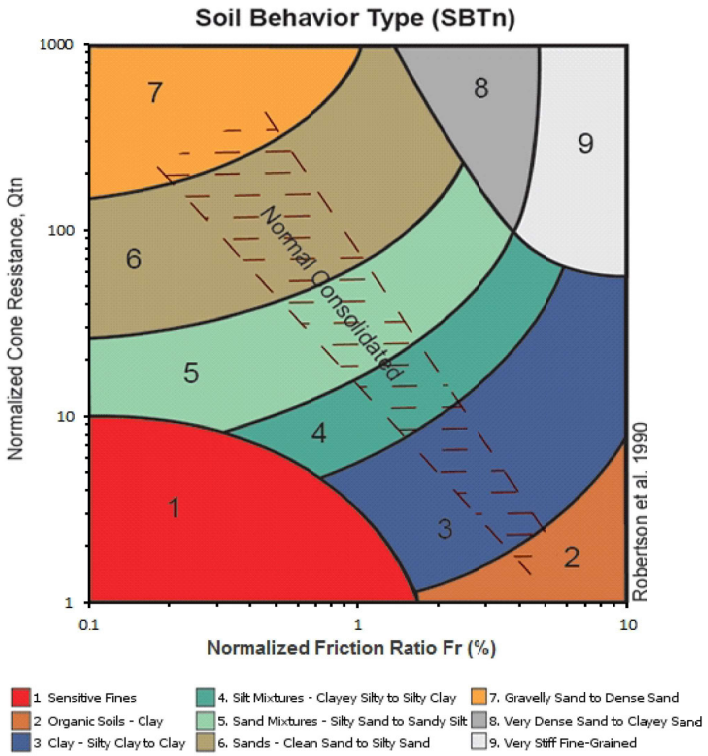
Clay Sensitivity St :
Robertson & Campanella 1988 Ns=6

Liquefaction MSF :
Youd et al. 2001 (NCEER 1997)

Stress Reduction Factor Rd :
Thomas F. Blake

Liquefaction Assessed For Following SBT:
7 8 9 10 12





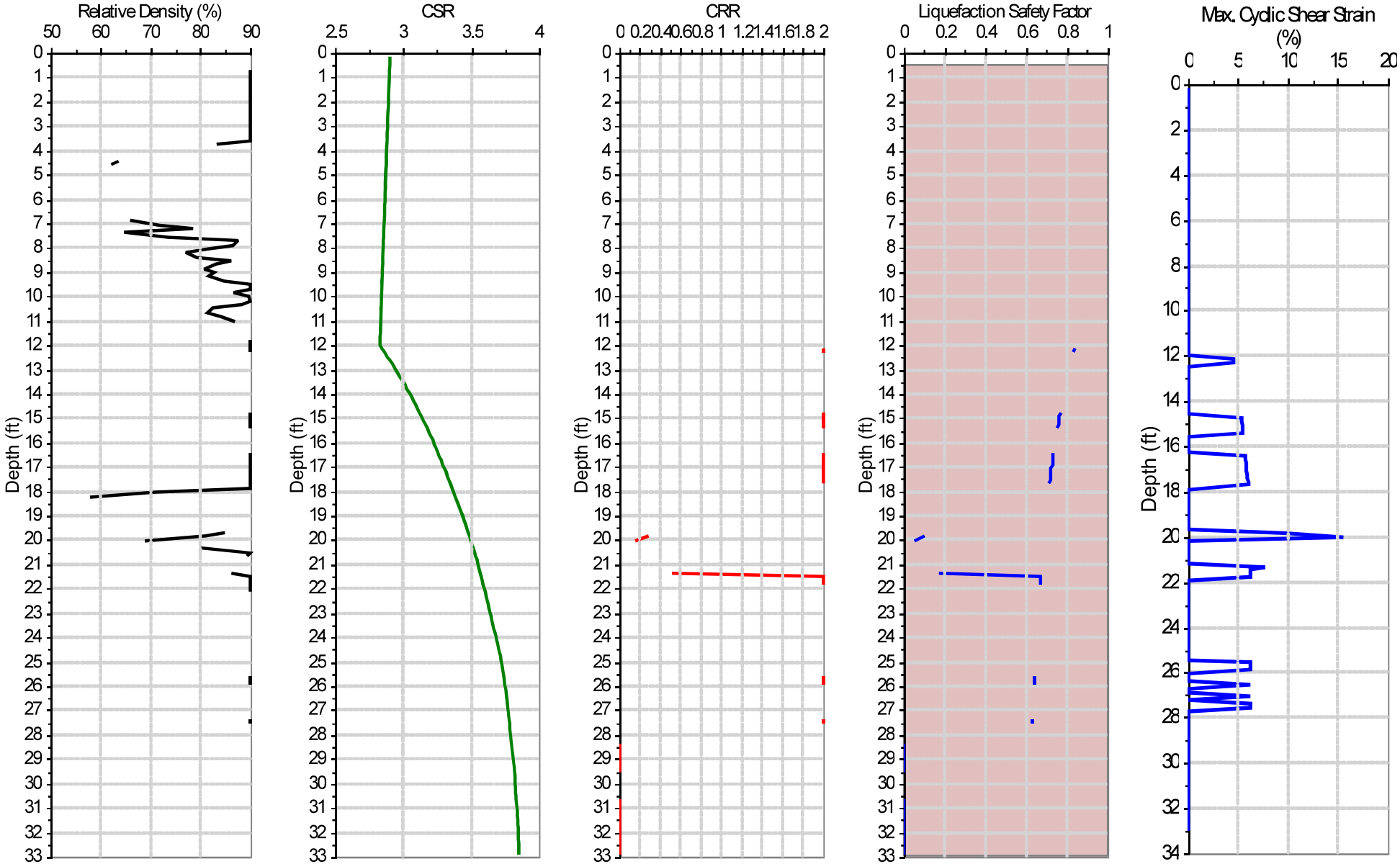
LIQUEFACTION CPT ANALYSIS REPORT

GeoSolutions, inc.

Project : Rancho Maria
Project No. : SB00666-1
Client : Wells
Location : Santa Maria
Notes :

Borehole : CPT-4
Ground Water Level : 12 ft ft
Coordinates : n.a.
Calculated By :
Checked By :

Ground Slope : Gently Sloped 0.5%
PGA = 4.459 gEq. Magnitude M = 7
Cone Area Ratio = 0.8
CPT Max. Depth = 33.13 ft



LIQUEFACTION CPT ANALYSIS REPORT

GeoSolutions, inc.

Project : Rancho Maria
Project No. : SB00666-1
Client : Wells
Location : Santa Maria
Notes :

Borehole : CPT-4
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Checked By :

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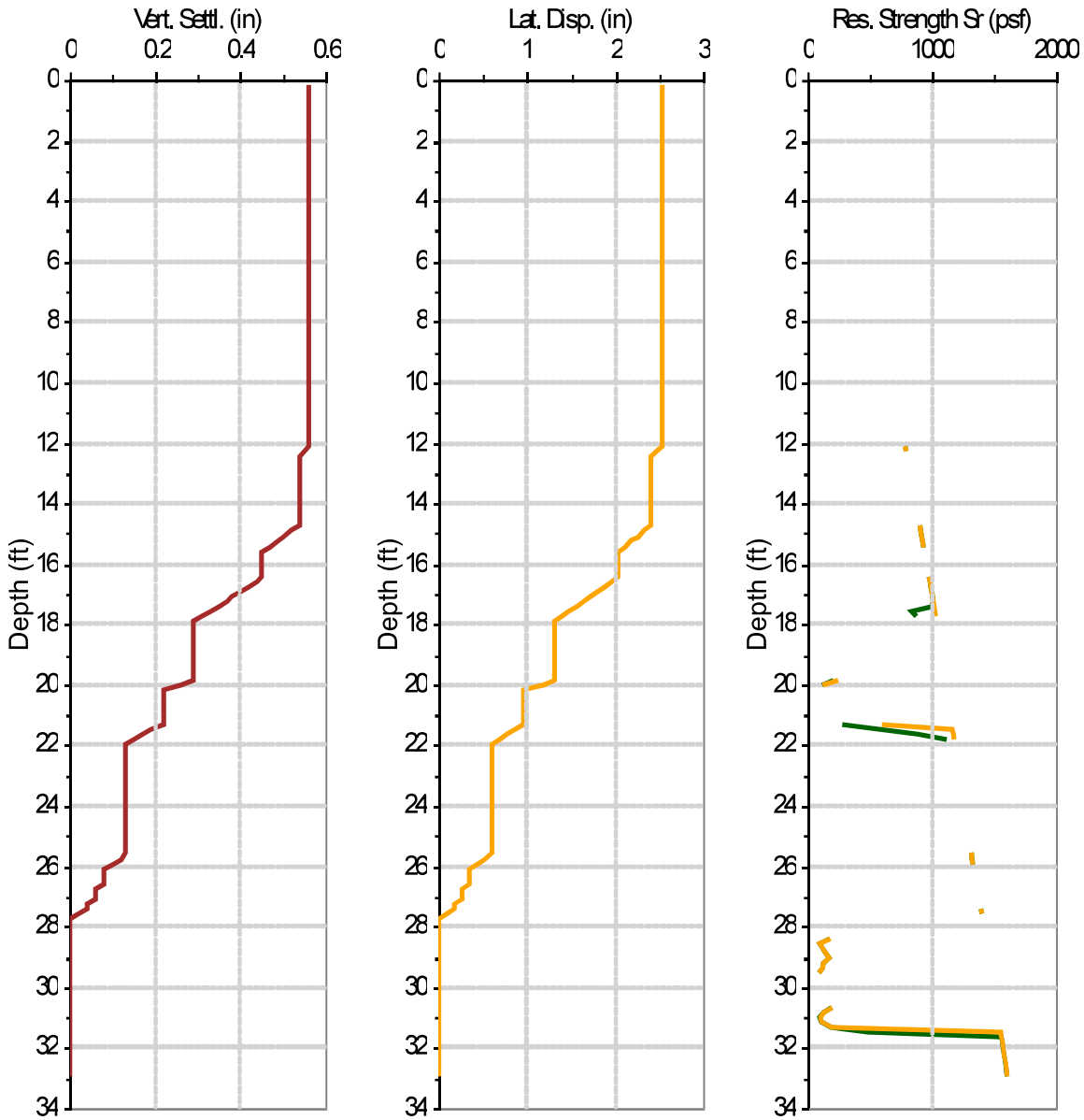

LIQUEFACTION CPT ANALYSIS REPORT

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Project : Rancho Maria
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Robertson 2010 (equation)

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Clay Overconsolidation Ratio OCR :
Powell et al. 1998

Sand Overconsolidation Ratio OCR :
Mayne 2005

Clay Friction Angle :
Sunneset et al., 1988 and 1989 (NTH solution)

Sand Friction Angle :
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Clay Young's Modulus Es :
Duncan & Buchihmami 1976

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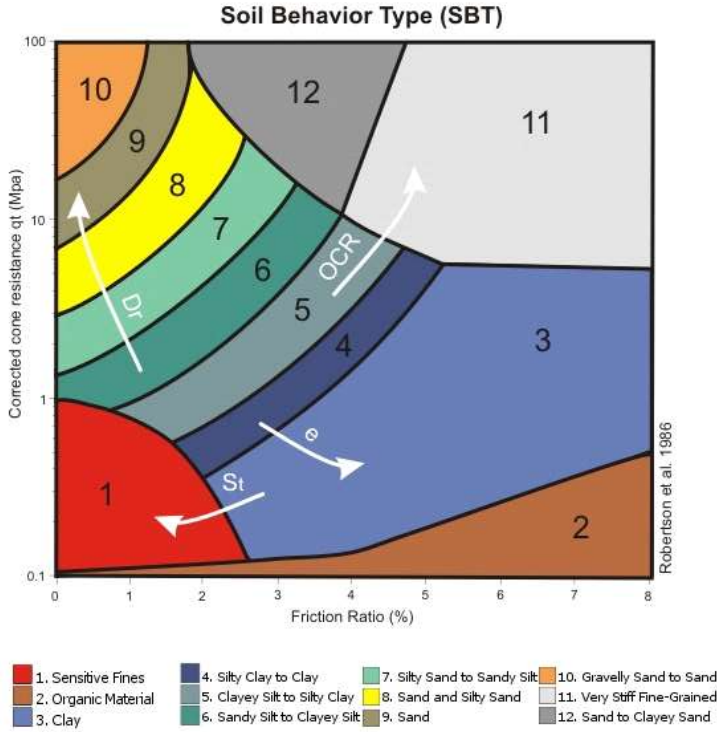
Sand Relative Density Dr :
Jamiolkowski et al. 2001

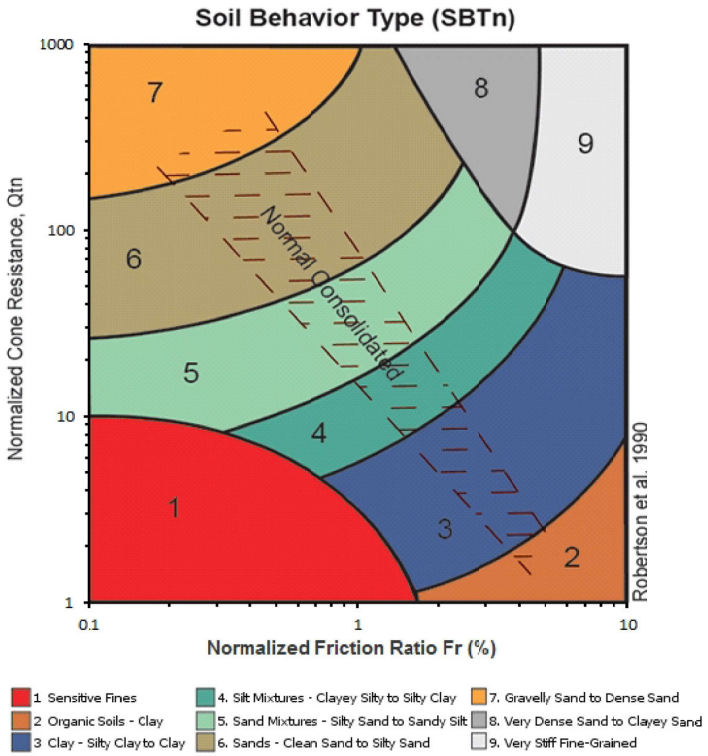
Clay Sensitivity St :
Robertson & Campanella 1988 Ns=6

Liquefaction MSF :
Youd et al. 2001 (NCEER 1997)

Stress Reduction Factor Rd :
Thomas F. Blake

Liquefaction Assessed For Following SBT:
7 8 9 10 12





Appendix F

Neighborhoods Specific Plan Environmental Documentation Report

THE NEIGHBORHOODS SPECIFIC PLAN ENVIRONMENTAL DOCUMENTATION

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March 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

2.0 PROJECT DESCRIPTION

3.1 AESTHETICS-VISUAL RESOURCES

3.2 AIR QUALITY

3.3 BIOLOGICAL RESOURCES

3.4 CULTURAL RESOURCES

3.5 DRAINAGE

3.6 FIRE

3.7 GEOLOGY AND SOILS

3.8 LAND USE

3.9 NOISE

3.10 PUBLIC SERVICES

3.11 RECREATION

3.12 TRANSPORTATION

3.13 WATER RESOURCES

3.14 GREENHOUSE GASES

1.0 INTRODUCTION

This Introduction discusses the structure of The Neighborhoods Specific Plan Environmental Analysis document. The objective of the document is to present an objective assessment of potential environmental impacts associated with the proposed Neighborhoods Specific Plan. The Environmental Analysis presents a comparison of each impact identified in the Orcutt Community Plan (OCP) Final Environmental Impact Report (95-EIR-01) to that associated with the proposed Project.

The OCP conceptually approved Key Site 21, Rancho Maria, for up to 150 residential units. The proposed Neighborhoods Specific Plan presents substantial detail relative to this conceptual approval, while reducing the residential unit count to 146.

Analysis of each environmental issue area addressed in the 95-EIR-01 is presented as follows.

Previous CEQA Review: This section summarizes the analysis of the fourteen environmental resource, impacts, and conclusions as presented in the OCP EIR. In addition, an analysis of Greenhouse Gas Emissions is presented consistent with current Santa Barbara County Air Pollution Control District guidance.

Relevant Project Changes: This section presents the fundamental changes between the proposed Neighborhoods Specific Plan and the previously approved Key Site 21 buildout relevant to the impact assessment of the particular resource in question.

Setting: This section discusses any changes to the regulatory setting and physical setting relevant to the impact assessment of the particular resource in question. The setting accounts for the number of residential units that have already been constructed since 1995 and are part of the environmental setting.

Impact Analysis: Any changes since OCP FEIR to the impact methodology or thresholds of significance maintained by the County of Santa Barbara for each particular resource in question are presented. Each environmental resource impact identified in the OCP SEIR is then summarized, along with any mitigation measures that were identified to reduce the adversity of the impact. The relative intensity of the OCP FEIR impact is then addressed relative to the proposed 2017 The Neighborhoods Specific Plan.

Figures and References for each environmental resource discussion follow the text in each respective chapter.

Technical analyses prepared by Santa Barbara County-qualified experts used as the basis for environmental resource discussions, as necessary, are referenced and provided as Appendices.

2.0 PROJECT DESCRIPTION

2.1 Project Location

The 189.2-acre Neighborhoods of Willow Creek & Hidden Canyon Specific Plan site is located adjacent to and south of State Route (SR) 1, approximately 2 miles west of Old Town Orcutt between the intersection of Black Road to the west and Solomon Road to the east, in the northwestern portion of the Orcutt Community Plan (OCP) area in the Third Supervisorial District. It is a part of a 340-acre site identified in the Orcutt Community Plan as Key Site 21. The following Assessor's Parcel Numbers are subject to the Neighborhoods Specific Plan: 113-250-015, -016, and -017.

2.2 Project Description

Orcutt Rancho, LLC, is requesting approval of the following applications for the Neighborhoods of Willow Creek & Hidden Canyon Specific Plan:

1. Per the provisions of DevStd KS21-1, a Specific Plan that furthers the purpose of the OCP. The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan provides for the design and regulatory framework to provide for orderly development offering the full spectrum of housing, a public trail, open space, and biological protection.
2. Two Vesting Tentative Tract Maps that create a total of 146 single family residence lots and 2 open space/private roadway lots to be maintained by an HOA for a grand total of 148 lots divided as follows in Table 2.1:

Table 2.1 Vesting Tentative Tract Map Details

VTTM 14,822: 106.73 acres	VTTM 14,823: 70 acres
Hidden Canyon (East)	Willow Creek (West)
APN 113-250-016	APNs 113-250-017
56 single family lots	90 single family lots
1 open space/private roadway lot	1 open space/private roadway lot

3. Two Development Plans for development of 146 single family residences, associated infrastructure including open space, and onsite water detention areas.
4. A Minor Conditional Use Permit for new entrance signs.
5. A Minor Conditional Use Permit for a new community water system.
6. A General Plan Amendment to relocate the proposed public trail staging area from the location shown in Orcutt Community Plan Figure KS 21-1 (adjacent to SR 1) to the project site.
7. A Road Naming application proposing names for the proposed private roads.

<u>Specific Plan (16SPP-00000-00001)</u>

The Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (June 2017) addresses the development of the residential component of OCP Key Site 21 and would:

- Provide a unit count of 146 single family homes.

- Provide a mix of lot sizes to be responsive to market trends.
- Design Guidelines to provide standards and guidance for architectural design, development, and landscaping.
- Provide lot standards per the provisions of the Specific Plan and PRD Zone District.
- Incorporate the current Santa Barbara County Inclusionary Housing Ordinance specifications to pay in-lieu fees for the entire Affordable Housing project requirement.
- Provide public trails.
- Provide SR 1 frontage improvements to include some widening that would include two (2) paved 12-foot travel lanes, 10-foot wide deceleration/turn lanes located at the new entrances to Willow Creek & Hidden Canyon, and two (2) paved 8-foot shoulders that would also serve as Class 3 bike lanes.

Vesting Tentative Tract Map (VTTM 16TRM-00000-00003/VTTM 14,822 & 16TRM-00000-00004/VTTM 14,823)

Two Vesting Tentative Tract Maps would be processed concurrently with the Neighborhoods Specific Plan. The VTTMs would divide the 176.73 acres into two tract maps that create a total of 146 fee simple single family residential lots and two (2) HOA lots (open space/private roads) divided as follows:

The lots would range in size from 8,000 square feet (a single-family lot in Willow Creek) to 49,098.95 sf (a Hidden Canyon open space/road lot). Major design components of the VTTM 14,822/16TRM-00000-00003 & VTTM 14,823 16TRM-00000-00004 are described below:

Grading: Grading for the tracts including roadways and building pads for the proposed homes is estimated to be approximately 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The grading was designed to result in a balance of cut and fill between the two neighborhoods. No grading fill would be placed within the undeveloped natural open space areas. It is summarized in Table 2.2 below.

Table 2.2 Tract Map Grading Detail

TM 14,823 Willow Creek (West Side)	TM 14,822 Hidden Canyon (East Side)
Cut: 197,110 c.y.	Cut: 335,516 c.y.
Fill: 224,141 c.y.	Fill: 251,149 c.y.
Net Fill: 27,031 c.y.	Net Cut: 84,367 c.y.

Proposed grading is estimated to occur over a 7-month period, presently projected between February 2020 and September 2020. Given that a portion of this activity would likely occur outside of the dry season of the year (April 1st to September 30th), a standard erosion-control plan would be required that incorporates Santa Barbara County Best Management Practices to address and minimize sedimentation.

The Neighborhoods Specific Plan would be subject to preparing a Storm Water Pollution Prevention Plan that would implement of Santa Barbara County Best Management Practices, erosion control measures and minimizes water quality degradation through storm water monitoring. In both neighborhoods, slopes would be contoured to the extent possible to provide smooth transitions between the graded areas and the adjacent natural land contours. Retaining walls outside of the building footprints would not exceed 4 feet in height as a result of the neighborhood configurations.

Drainage: Runoff from the proposed lots and roadways would be directed to bio-retention facilities where feasible with any possible overflow captured within desilting/retention basins.

Willow Creek Drainage (Western section): Drainage from the site would be directed to two (2) on-site retardation basins and five (5) bio-retention basins totaling 1.62 acres to contain a 100-year storm event, while utilizing Low Impact Design (LID) features including diversion of drainage to landscaped areas to promote infiltration. Any excess runoff will follow the historical drainage course that runs south-to-north along the center of the Neighborhoods Specific Plan area. The retardation basins would be fenced with wooden split rail or steel tubular fencing.

Hidden Canyon Drainage: Drainage from the site would be directed to one (1) on-site detention basin totaling 1.90 acres to contain a 100-year storm event, and to provide an overland escape to the natural drainage course near the northeast corner of the Neighborhoods Specific Plan area site utilizing Low Impact Design (LID) features include diversion of drainage to landscaped areas to promote infiltration.

Source Control site design includes roof drains for single family lots to be directed through vegetated yard swales to promote infiltration as a first measure of treatment. Treatment control measures include low flow swales within developed catchment areas and a detention basin to promote infiltration of the runoff from the 1.2"-storm event. The retardation basin would be fenced with wooden split rail or steel tubular fencing.

Water: The net consumptive use of the Neighborhoods Specific Plan is estimated to be 106.02 AFY. Water would be provided by a private water company drawing from a proposed onsite well and back-up well. Storage would be provided by two (2) 24-foot high, 500,000-gallon water tanks with booster pumps, one each constructed in the southerly, most elevated portion of the Willow Creek and Hidden Canyon Neighborhoods. The Willow Creek water tank would be partially excavated between 5 and 6 feet below surface, while the Hidden Canyon tank would be excavated between 10 and 20 feet (on the north and south sides, respectively) below the ground surface.

Wastewater: Sewer service for The Neighborhoods Specific Plan would be provided by the Laguna County Sanitation District. The Neighborhoods Specific Plan wastewater demand is estimated to be 237,000 gallons per day. The proposed onsite collection system is comprised of a network of gravity sewer lines located in the private roads serving the individual units that will meet at SR 1 and tie into recorded easement to the 24-inch sewer main to the North.

Access & Circulation: The Neighborhoods Specific Plan proposes private streets and secondary access routes for internal vehicular circulation as well as private decomposed granite (DG) pedestrian walkways. The Neighborhoods Specific Plan site would also include a 2,800-foot long public trail and a six-space trailhead parking area at the trail head in the Hidden Creek Neighborhood. Access to the site would be provided via three newly proposed private roads off of SR 1. The primary private access roads would be 38-feet wide, with parking allowed on both sides. The secondary private roads would be 24-feet wide, with no parking allowed. The on-site circulation is private and designed to accommodate moving vans/trucks, emergency vehicle access and trash pick-up and to provide safe access and adequate storage for motorists to and from the Neighborhoods Specific Plan area. The developer would comply with the County's off-street parking requirements.

Willow Creek (Western section): A new private road would be constructed approximately 1,200 feet west of the main entrance to the Rancho Maria Golf Course (RMGC) and would serve the 90 home sites at the "Willow Creek" neighborhood. A private secondary access road would be provided in the Willow Creek

neighborhood with gated egress for residents and full access for emergency personnel only that would be secured by a Knox Box; emergency exiting would be unrestricted and automatic.

Hidden Canyon (Eastern section): Two new private roads would be constructed approximately 1,100 and 1,900 feet east of the existing RMGC entry to provide primary and secondary access to the 56 home sites of the "Hidden Canyon" neighborhood.

Development Plans (16DVP-00000-00004; 16DVP-00000-00008)

Development Plans (one each for the Willow Creek and Hidden Canyon neighborhood) would provide for the future development of 146 market rate single family homes. These two neighborhoods are each contained within their own Vesting Tentative Tract Map, as described above. Proposed Development Plans would avoid all areas where the historic and current RMGC activities including maintenance areas and internal access between golf holes have encroached within the adjacent Specific Plan parcels. The Willow Creek neighborhood would be located in the western portion of the property and consists of 90 single family home sites. The Hidden Canyon neighborhood would be located on the eastern portion of the property and consists of 56 single family home sites. Land use details are provided in Table 2.3 below. The average residential lot size for the two neighborhoods would be approximately 11,400 s.f. and 18,000 s.f., respectively. The grading of the neighborhoods would occur simultaneously and would result in a balance of cut and fill within the Specific Plan developed area. No grading fill would be placed within the undeveloped natural open space areas. Development of the single-family homes within the two neighborhoods would be independent of each other, and would potentially occur at different times in the future dependent on factors relating to future tract ownership, permit processing, and/or economic cycles.

The Development Plan includes details for site design and preliminary grading and drainage plans with roads and utilities, landscaping plan, fencing plan and details. The proposed maximum height of residential structures is 35 feet and would be determined for each residence at building permit stage. Homeowners Associations would be established for each neighborhood to maintain the community facilities, including private roads, and enforce the Covenants, Conditions, and Restrictions (CC&Rs) to be recorded for the Neighborhoods Specific Plan. There would be one set of CC&Rs recorded that would govern both neighborhoods of the development.

Affordable Housing: The Neighborhoods Specific Plan would be consistent with the provisions of the Santa Barbara Inclusionary Housing Element and the In Lieu Housing Ordinance to pay fees.

Architecture: Design Guidelines in the Specific Plan provide standards and guidance for architectural development. Houses would be built in various architectural styles including: Traditional California Bungalow, Mediterranean, California Ranch, and Modern. Architectural elements including porches, balconies, and decks are encouraged to provide visual interest and neighborhood attractiveness. Garages are encouraged to be set back from the fronts of homes to enhance streetscape visual interest, and provide a more pedestrian oriented environment.

Table 2.3 Land Use Statistical Table

AREA TYPE	WILLOW CREEK	HIDDEN CANYON	TOTALS
Managed Open Space			
Landscape Areas	13.7	10.7	24.4
Trailhead and Trail	–	1.7	1.7
Fuel Modification	–	3.7	3.7
Managed Open Space Total:	**13.7**	**16.1**	**29.8**
Undisturbed Open Space*	**37.2**	**59.5**	**96.7**
Developed Areas			
Residential Lots	23.5	23.2	46.7
Roads and Water Tanks	8.1	7.9	16.0
Developed Areas Total:	**31.6**	**31.1**	**62.7**
TOTAL:	**82.5**	**106.7**	**189.2**

All figures in acres

**Undisturbed Open Space in Willow Creek includes 12.5 acres (APN 113-250-015) not included in TM 14,823*

Willow Creek (Western Section): The Willow Creek neighborhood features residential areas sited on 37.2 acres to provide 90 single family lots with an average residential lot size of 11,400 s.f., a maximum building height of 35 feet, and a single-story restriction on lots immediately adjacent to the RMGC fairway. Private fire access (secondary access) roads would be gated at the RMGC parking lot to provide emergency vehicular access (EVA) ingress access through the parking lot if needed, as well as egress for residents.

Golf course safety netting would be constructed along the Willow Creek ingress/egress adjacent to the RMGC Hole 15. Twelve steel poles, 2-feet in diameter and between 8 and 60-feet high spaced 50-feet apart would extend over 550 feet. Screening landscaping would be established between the netting and the access road with trees reaching 55 feet at maturity, and maintained by the Homeowners Association.

Hidden Canyon (Eastern Section): The Hidden Canyon neighborhood features residential areas sited on 39.3 acres to provide 56 single family lots with an average residential lot size of 18,000 s.f., maximum building height of 35 feet, and a single-story restriction on lots immediately adjacent to the RMGC fairway. The neighborhood site is located on the east side of Key Site 21. Primary and secondary access to the Hidden Canyon neighborhood would be via two private roads on SR 1, located approximately 1,100 and 1,900 feet east of the existing RMGC entry. Park improvements include a trail connection, trail, and trailhead parking for up to six (6) vehicles.

Landscape Architecture: The Neighborhoods Specific Plan prescribes specific planting guidelines for the community as a whole, adjacent to streets, within parks, and within the neighborhoods. The planting guidelines detail specific plants to be used in order to promote drought tolerance, to shade streets and to blend with the existing native environment, and to prohibit the use of invasive species.

Lighting: The Neighborhoods Specific Plan contains guidelines for street lighting, neighborhood entry lighting, and community facilities lighting. The intent is to provide sufficient lighting for all Neighborhoods Specific Plan areas without impacting the natural open space areas or the dark sky views, and to be dark sky compliant. Street lighting would provide illumination for motorists and pedestrians, but would not intrude into residences or open space areas. Lighting at the neighborhood entries would be sufficient to create a visual gateway and could include lighting of entry monuments. Neighborhood entry

lighting would be limited to the immediate vicinity of the entry and associated directional Neighborhoods Specific Plan signage. Lighting would be shielded so that it does not intrude into any adjacent open-space areas and motion-sensor lighting may be used as appropriate. No trail lighting is proposed.

Lot Standards: As described in the Specific Plan, the minimum setbacks for single family residential units in all neighborhoods are 15' front yard with 20' minimum to the garage door where it faces the street, 10' rear and 5' side yard setbacks. The minimum setbacks within these two neighborhoods are intended to provide maximum flexibility for each lot to create a varied streetscape.

Parking Standards: The Neighborhoods Specific Plan requires that each single-family home have a minimum two (2) off- street parking spaces. Two additional vehicles can be easily accommodated in the driveways based on garage setbacks. The trailhead area provides six (6) parking spaces.

Neighborhoods Specific Plan Sustainable Design Features: The proposed Neighborhoods Specific Plan incorporates various design features that would reduce air pollutant emissions. These include: 1) use of solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent; and, 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

1. Alternative Energy Source. – Solar Power. All residential units would be pre-wired for potential future solar power.
2. Energy Efficiency Improvements. Proposed architectural planning and design would take advantage of energy efficiency, such as natural heating and/or cooling via roof overhangs and window placement, sun and wind exposure, and solar energy opportunities. Residential design would also consider sufficient setbacks and orientation to maximize solar access to all homes.
3. Water Conservation. Indoor water use would be conserved through the following measures:

    - All hot water lines would be insulated.
    - Water pressure would not exceed 50 pounds per square inch (psi). Water pressure greater than 50 psi would be reduced to 50 psi or less by means of a pressure-reducing valve.
    - Recirculating, point-of-use, or on-demand water heaters would be installed.
    - Low-flow plumbing fixtures would be used, including 1.6 gallons-per-flush toilets; water-efficient clothes washers and dishwashers would be installed.

Outdoor water use would be reduced by incorporating drought-tolerant trees, shrubs, and groundcovers compatible with the natural surroundings and the community's architectural theme in The Neighborhoods Landscape Concept Plan. The plant selection would encourage compatible, non-invasive, climate-suitable and drought-tolerant landscape designs, and plants would be grouped by water needs. Evapotranspiration irrigation controllers would be provided, and private irrigation systems are encouraged to be designed to apply water slowly, allowing plants to be deep soaked and reduce runoff. Water-efficient systems, such as drip or bubblers, are encouraged in all areas needing irrigation except turf irrigation and small ornamental plantings. Efficient use of water from the roof drains for landscape irrigation would also be encouraged. Water efficient systems would comply with the Governor's emergency drought declaration and recent changes to the State Model Water Efficient Landscape Ordinance and California Green Building Code.

4. Architectural Site Design and Pedestrian Circulation. Traditional elements, consistent with the proposed Neighborhoods architectural styles, would be incorporated to create a pleasant pedestrian-oriented neighborhood environment. These elements include front porches, recessed front garages, or garages on the side of homes, generous street landscaping, and access to a private DG pedestrian pathway system. Streetlights would provide a safe level of illumination for pedestrians and breaks in view fencing would be provided at cul-de-sacs to facilitate pedestrian movement. Subdivisions would provide pedestrian walkways through the Neighborhoods Specific Plan area that connect with the trail system. Where possible, cul-de-sac streets and adjacent lots in new residential subdivisions would be designed to provide pedestrian links between the end of the cul-de-sac and adjacent cul-de-sac, or between the cul-de-sac and a larger pedestrian pathway system.

Specific Plan Open Space Areas: The proposed Specific Plan includes 96.7 acres of private undisturbed open space in the two neighborhoods (12.5 acres of natural open space are located on APN 113-250-015 which also includes the RMGC entry but is not a part of either of the tentative tract maps). These undisturbed open spaces make up approximately 51% of the overall Neighborhoods Specific Plan area. In addition, there are another 29.8 acres of private managed open space that includes landscape, trailhead, trails, and fuel modification areas.

Public Trail: The Neighborhoods Specific Plan includes a 2,800-foot long public trail that would provide access from the residential development (Hidden Canyon) to approximately 400 feet above sea level, a 190-foot elevation gain that would end at the proposed water tank in the southeast corner of the Specific Plan area. The Hidden Canyon tract map includes dedication of an easement that would extend from the terminus of the proposed public trail to the Specific Plan southeastern boundary. Signage would be placed at the end of the trail stating that the trail ends and that trespass farther south is prohibited. The Santa Barbara County Community Services Department, Parks Division would be responsible for installing the balance of the trail within the Specific Plan site in the future as a part of an overall project to extend the trail on the adjacent parcel to the south (Claude Garciacelay, personal communication 2018). The construction of the onsite trail would ensure consistency with the OCP Development Standard Key Site 21-5.

Fire Access: The County Fire Department has identified acceptable road locations and widths to provide for full private secondary access that includes a driveway and road at the eastern edge of the Hidden Canyon neighborhood providing a right turn egress onto SR 1. A raised "pork chop" median island to discourage left turns onto SR 1 but allow access for emergency personnel would be installed at the driveway along with signage for a right turn only. The primary private entrance road to this neighborhood is located approximately 800 feet to the west of the secondary egress. Willow Creek's secondary egress would be through the existing EVA easement through the RMGC parking lot and through the existing RMGC entrance that is part of APN 113-250-015. The secondary egress would be accessed through a private road and would be egress gated for residents; it would be secured by a Knox Box for full access to emergency personnel only.

General Plan Amendment (Case No. 17GPA-00000-00005)

A General Plan Amendment is requested to relocate the proposed trail staging area from the location shown in Orcutt Community Plan Figure KS 21-1 (adjacent to SR 1) to the Project site.

Minor Conditional Use Permit (17CUP-00000-00030)

A new Community Water System is proposed to serve the Hidden Canyon and Willow Creek Tracts. The water system would include two new water wells, a hydro-pneumatic tank system and by two partially subterranean 500,000-gallon water tanks, one each above the Willow Creek and Hidden Canyon Neighborhoods. Waterlines would be installed from the water system to each of the Tracts**.**

Conditional Use Permit For Entry Monuments (16CUP-00000-00033)

This is a request for approval of the conditional use permit to allow two entrance monument signs for both Willow Creek and Hidden Canyon neighborhoods, each with a maximum size of 20 s.f.

Road Naming (16RDN-000000-00002)

This is a request for approval of the naming of proposed private roads within proposed Willow Creek and Hidden Canyon Neighborhoods in compliance with Chapter 35.76 of the County Land Use and Development Code, on property zoned Planned Residential Development (PRD).

3.1 AESTHETICS/VISUAL RESOURCES

This section describes the potential aesthetics and visual resources impacts that could result from buildout of the 2017 Neighborhoods Specific Plan.

3.1.1 Previous CEQA Review

Orcutt General Plan

The proposed Neighborhoods Specific Plan (Specific Plan) was analyzed as Key Site 21 within the 1997 OCP EIR (County of Santa Barbara, 1997). The EIR identified State Route (SR) 1 northwest of Key Site 21 that was designated as an Eligible State Scenic Highway. Views to the southeast from SR 1 included expanses of rolling grassland, agriculture, eucalyptus windrows, and the Rancho Maria Golf Club. The OCP identified general visual resources impacts to which the development of Key Site 21 would contribute (Impact VIS-1, etc.) and impacts specific to Key Site 21 buildout, project-specific impacts (KS21-VIS-1, etc.).

The following *significant, unavoidable impacts* (Class I) on aesthetics/visual resources were identified resulting from OCP buildout:

Impact VIS-1: *Project buildout would transform the site from a semi-rural to urban area.*

Impact VIS-7: *Residential development would permanently remove scenic natural resources such as extensive open grasslands and eucalyptus groves*.

Impact VIS-14: *Development would result in the elimination of existing open space areas.*

Impact VIS-17: *Project buildout would cumulatively contribute to the expansion of urban activities into existing rural open space*.

Impact VIS-18: *Development would degrade views from designated scenic corridors.*

The following *significant, but feasibly mitigated impacts* (Class II) were identified resulting from OCP buildout:

Impact VIS-2: *Residential development and street lights would substantially increase night lighting and would disrupt existing nighttime visual conditions*.

Impact VIS-5: *Residential development would result in degradation of views along gateway roads to community.*

The following *significant, but feasibly mitigated impacts* (Class II) were specifically identified resulting from Key Site buildout:

Impact KS21-VIS-1: *Project buildout would substantially change the open space character of the project site to that of low density residential development.*

Impact KS21-VIS-2: *Residential development would degrade the scenic view corridor on the southern side of SR I by interrupting the views of the rolling hills with low density housing.*

3.1.2 Relevant Project Changes

The location of the proposed Specific Plan residential lots would be generally consistent with conceptual Key Site 21 development analyzed in the OCP EIR. The following Specific Plan refinements would affect the intensity of impacts previously identified for Key Site 21.

- The proposed 146 single-family homes are four fewer than conceptually approved for Key Site 21.
- The proposed 97 acres of undisturbed open space are three times greater than conceptually protected in Key Site 21.

Setting

Regulatory Setting

No changes to the County of Santa Barbara Comprehensive Plan, or Land Use and Development Code, have occurred since 1997 that affect the analysis of visual resources.

The existing County of Santa Barbara Visual Aesthetics Impact Guidelines (2006) state:

> "Important factors in this evaluation include the physical attributes of the site, its relative visibility, and its relative uniqueness. In terms of visibility, four types of areas are especially important: coastal and mountainous areas, the urban fringe, and travel corridors."
>
> "Significant visual resources as noted in the Comprehensive Plan Open Space Element which have aesthetic value include:
>
> - Scenic highway corridors;
> - Parks and recreational areas;
> - Views of coastal bluffs, streams, lakes, estuaries, rivers, water sheds, mountains, and cultural resource sites; and
> - Scenic areas.
>
> All views addressed in these guidelines are public views, not private views."

Physical Setting

No changes to the Key Site 21 physical setting have occurred since 1997. The proposed Project site is currently undeveloped open space to the east and west of the 18-hole public Rancho Maria Golf Club (RMGC), within which proposed Willow Creek and Hidden Canyon neighborhoods would be constructed. Agricultural row crops are to the north, east and west of the proposed Project site, while low intensity residential is to the south.

Public views of the Specific Plan site are experienced from SR 1 looking southward. The Santa Barbara County Open Space Element classifies SR 1in this area as a Level 2, Category 6 scenic corridor ("moderately scenic, major capacity, secondary distribution route"). SR 1 has been designated as an "eligible highway" for a "Scenic Highway Designation" along its entire length in Santa Barbara County, warranting enhancement and preservation of visual resources in its view corridor. Drivers and passengers driving on the roadway at the posted 55 MPH speed west and eastbound on SR 1 experience views of The Neighborhoods Specific Plan area for approximately 30 seconds.

Representative existing views looking west to the Specific Plan Hidden Valley Neighborhood from the SR 1/Solomon Road intersection are illustrated in Figures 1, 2, and 11, Existing View. Row crop agriculture fields are experienced in the foreground view, and telephone poles and wires are experienced as one approaches and passes by the Project site (Figure 2 and 11, Existing View). Small bushes and large trees, primarily eucalyptus and cypress, within the RMGC are experienced in the middle-ground view. The Casmalia Hills rise in elevation south of the Project site and are visible in the background view.

A representative view of Specific Plan Willow Creek Neighborhood from SR 1 west of the Project site looking southeast is identified in Figure 3 and Figure 10, Existing View. Similar to views from SR 1 looking westward (see Figures 1 and 2), the foreground view is of row crops. The middle-ground view of the RMGC is partially screened by trees along the western property boundary, and the background views are of the Casmalia Hills.

The SR 1 view past the existing RMGC entrance to the southeast is identified in Figure 4, Existing View. Foreground and middle-ground views are of the Golf Course turf and scattered trees, while background views are of the Casmalia Hills and include small residential structures on top of the hill. Proposed residential buildout is not visible from the RMGC entrance road looking directly southward, and is therefore not assessed.

Representative views from the RMGC of important visual resources experienced while golfing are also addressed as public view corridors. The following view corridors were identified by Planning & Development staff during a site visit that would include background views extending beyond the RMGC and proposed Specific Plan property. Two views from the existing RMGC Hole 6 Teebox adjacent to Hidden Canyon Neighborhood are illustrated. Views looking eastward (see Figure 5, Existing View) include including a retention pond in the foreground, scattered trees and the fairway turf in the middle-ground, and the Sierra Madre Mountains in the far background. Views looking southeast from the Hole 6 Teebox (see Figure 6, Existing View) include turf and ornamental trees in the foreground and middle-ground, and the Casmalia Hills in the background.

Views looking north from the existing Hole 13 Tee Box adjacent to the Willow Creek Neighborhood area (see Figure 7, Existing View) illustrate foreground views of annual grasses and forbs, ornamental trees in the middle-ground, and the low-lying foothills of the Sierra Madre Mountains north of the Santa Maria River in the background. Views from the Hole 18 Tee Box looking southward and across the Willow Creek Neighborhood area (see Figure 8, Existing View) include golf course turf in the foreground, annual grasses and forbs in the middle-ground, and views of the Casmalia Hills in the background.

Views looking north from the existing Hole 15 Teebox (see Figure 9, Existing View) includes golf course turf in the foreground, scattered ornamental trees along the Hole 15 cart path near the western property boundary and adjacent farm land to the west in the middle-ground, and farmland and the Sierra Madre foothills north of SR 1 in the background.

Although the landscape characteristics of the proposed project site varies on the view, the overall nature of visual resources that are experienced from public view corridors includes:

- foreground: golf course turf, pond, and ornamental trees along hole fairways and project boundaries;
- middle ground: golf course turf and ornamental trees along hole fairways with row crops beyond Project site boundaries; and
- background: gently undulating topography of the Sierra Madre Range to the north and Casmalia Hills to the south.

3.1.3 Impact Analysis

Methodology

No changes to the County of Santa Barbara Visual Resources Guidelines, including thresholds of significance, have occurred since 1997 that affect the analysis of visual resources.

Only public views or view corridors were evaluated against the above criteria. As OCP policy does not regulate or provide for mitigation of visual impacts upon private viewsheds, changes to views from private properties were not evaluated as part of the following impact assessment. Additionally, views from private property such as backyards, front yards, interior living spaces, or private roadways are not considered public view corridors.

Project Impacts and Mitigation Measures

Potential impacts on visual resources are discussed below.

Impact AES-1: ***Development of the existing open space character of the project site would substantially obstruct views of important physical attributes throughout the Neighborhoods Property.***

1997 Impact Analysis

General and site-specific impacts associated with the obstruction of views were identified in Impacts VIS-5, VIS-18, in the OCP EIR. The OCP FEIR found that development of 150 residential units on Key Site 21 would result in substantial obstruction of public views, particularly from the SR 1 scenic corridor between Black Road and Solomon Road. This would result in a *potentially significant and unavoidable* (Class I) impact on visual resources.

Mitigation Measures and Residual Impacts

The OCP EIR following mitigation measures were proposed to reduce the impact on scenic corridors:

VIS-5: The County shall amend the Land Use designations to apply the Scenic Buffer Overlay to Key Sites #1, 2, 3, 14, 15, 21, 22 and 25 (located along "gateway" roads of Orcutt) to ensure that future development is sited and designed in such a manner as to protect and enhance public views of and across these parcels to the maximum extent feasible. The following measures shall apply to any development proposed on the Key Sites:

* At a minimum, development of structures shall be prohibited within 50 feet of the property line, unless this precludes reasonable development.

* New development shall be required to install and maintain landscape buffers along gateway roads of a minimum 35' in width, with sufficient plantings of major trees and shrubs to obscure parking areas from public view and to "break up" building masses. The County may increase the width of this buffer as necessary to minimize adverse impacts to public views.

* Any structure with the potential to obstruct views of the Solomon or Casmalia Hills from a public viewpoint or travel corridor shall be designed so as to preserve views of these hills to the maximum extent feasible.

* Excessive grading of scenic natural features and slopes in excess of 20% shall be prohibited.

KS21-VIS-I: The proposed Open Space Overlay shall be applied to an area extending along the central drainage corridor and the drainage corridor crossing the southwest comer to preserve riparian vegetation and prevent development on the steep slopes along the southern boundary.

KS21-VIS-2: Development of the site shall include installation of a minimum 50-foot landscaped buffer along Highway 1 for parcels designated residential. The buffer shall be landscaped with a sufficient density of trees and shrubs to screen all parking areas from these roadways and to break-up and screen development. Trees exceeding 50

feet in height shall be planted in the buffer along Highway I in clusters at a maximum of every 100 feet.

The residual impact on obstruction of public views were considered *significant and unavoidable* (Class I).

2018 Impact Analysis

Eleven different public views of the Neighborhoods Property have been analyzed in this study. Visual simulations of proposed Specific Plan buildout have been prepared by Videoscapes, a firm that has prepared numerous products for Santa Barbara County applications including OCP Key Site 12, Rice Ranch Specific Plan, and the Isla Vista Community Plan Update. The simulated views are "massing studies" that demonstrate the extent to which existing views of the foreground terrain and landscape and background views of the Casmalia and Casmalia Hills would be modified and/or obstructed. The simulations characterize public views that would potentially be affected by the proposed Specific Plan, and illustrate Proposed Views without landscaping, and Proposed Views with mature, established Landscaping.

The impacts on visual resources vary according to location of the view and proximity to the Project site. The proposed Project would integrate 1997 OCP mitigation measures including a minimum 50-foot buffer from the Project boundary fronting SR 1. Additionally, units would not exceed a 30-feet height.

Each of the important visual resources experienced from public views within and outside the Project site are discussed below.

Agricultural Row Crops

Proposed residential development would not obstruct the foreground views of agricultural row crops located east and west of the Project site as experienced from SR 1 (see Figures 1, 2, and 10, Proposed Views). A view of row crops from within the RMGC on Hole 15, looking northwest, would be obstructed by additional ornamental screen trees along the Willow Creek neighborhood access road (see Figure 7, Proposed Views). Overall, expansive foreground views of agricultural row crops as experienced from SR 1 and from within the RMGC would not be substantially obstructed or converted to residential buildout. Impacts on aesthetics/visual resources would be *adverse, but less than significant*.

Ornamental Trees within the RMGC

Scattered trees planted along golf course fairways and along the RMGC property boundaries are experienced in the middle-ground of nearly every view corridor assessed in this study. Residential development, including housing and associated landscaping, would affect in varying degrees these views. Development of the Hidden Canyon neighborhood on the east side of the Project site would partially obstruct views of the existing eucalyptus windrow located behind and within the interior of the golf course (see Figure 1 and 2, Proposed Views). The obstruction would be slightly greater as seen from a distance (see Figure 1, Proposed Views) than closer to the Project site (see Figure 2, Proposed Views). Proposed residences, however, would not exceed 30 feet in height and would be recessed

below the existing landform visible on the eastern property boundary closer to SR 1, such that they would not substantially obstruct the views of the skyline trees as experienced from the roadway. The overall sylvan quality of these view corridors would be maintained. Views of isolated ornamental trees experienced from east of the RMGC entrance would not be impacted (see Figure 4, Proposed Views).

Views of isolated trees west of the RMGC entrance also would not be impacted by Willow Creek neighborhood development and would not obstruct views of the windrows experienced on the west of the Project site (see Figure 11, Proposed Views). Views of screen trees along the western Specific Plan boundary as seen from SR 1 eastward would be affected the proposed protective golf course poles and netting along Hole 15, but proposed landscaping including rows of shrubs and evergreen trees would result in a denser wall of landscaping than presently experienced (see Figure 10, Proposed Views).

Proposed residential development would impact some existing golf course trees. A tree survey of the Project site (PleinAire Design Group, 2017) identified 47 trees that would be removed in the Willow Creek Neighborhood, and 13 trees in the Hidden Canyon Neighborhood (257 trees currently exist on the Project site). Of these, 19 are "protected" as characterized by: non-native trees having a 25-inch or greater diameter measured at 4-feet from the ground (diameter breast height or DBH); for coast live oaks, 6-inches or greater in DBH, or 6 feet or greater in height (Dudek 2017). The proposed Specific Plan Landscape Plan includes two types of open space areas that would be landscaped: 1) natural areas that would be essentially undisturbed and managed for habitat protection and fire safety: and 2) landscaped open space between residential rear yards and natural areas. The planting within the landscaped open space areas would be primarily native and Mediterranean drought tolerant plants species located to define the residential/golf course interface edges, screen views, buffer land uses, and enhance the visual character.

Representative views from the RMGC Hole 6 Teebox identified by Planning & Development staff for analysis illustrate that the proposed Specific Plan would remove one cypress tree beyond to the retention pond and 6th Green adjacent to Hidden Valley Neighborhood development (see Figure 5 Proposed View). A beneficial outcome of this removal would provide a broader exposure to the Sierra Madre Mountains in the background, a significant visual resource (see Figure 5 Proposed View). Proposed landscaping in the Hidden Valley residential lots below and on both sides of the Hole 6th Green, however, would offset the cypress tree removal by providing additional landscape framing of the background mountain view.

An example of tree removal within an important view corridor would also occur on the periphery of the Hole 15 fairway (see Figure 9, Proposed View). Approximately 5 trees including several non-native protected trees would be removed beyond the Hole 15 fairway to provide for protective netting screening the proposed Willow Creek Neighborhood access road. Proposed landscaping providing a solid windrow of evergreen trees would be planted between the netting and the access road, outside of the RMGC fairway that would completely offset the loss of the non-native tree removals (see Figure 9, Proposed View with Landscaping). The column-like character of the proposed screen trees would blend with the proposed netting poles, reducing their visual effect. The addition of the proposed evergreen windrow would represent adequate compensation for the loss of the existing non-native trees along the 15th Fairway.

As noted above, a number of established trees along the interior RMGC fairways and along the western Project site boundary would be removed. In each case, proposed landscaping screen trees would effectively compensate for these removals, and after establishment enhance the visual effect of important public view corridors. The long-term maintenance of the trees would be ensured by The Neighborhoods homeowners associations, such that over the long term, impacts of tree removal on aesthetics/visual resources would be *adverse, but less than significant*.

Background Topographic Views

Background views of mountains and hills are experienced from most of the representative public view corridors identified for analysis by Planning & Development. Development of the Hidden Canyon Neighborhood would not background obstruct views of the Casmalia Hills experienced from SR 1 westward (see Figures 1 and 2, Proposed Views) and from SR 1 eastward from near the SR 1 / Black Road intersection (see Figure 3, Proposed Views). Similarly, views from adjacent to the RMGC golf course entrance looking back at the Hidden Canyon Neighborhood (see Figure 4, Proposed Views) would not impact background views of the Casmalia Hills.

Proposed improvements to provide for adequate safety of the Willow Creek Neighborhood driveway traffic from existing RMGC 15th Fairway errant golf shots would impact background views of the Casmalia Hills as experienced from SR 1. The proposed dense evergreen tree screening windrow along the western property boundary bordering the RMGC 15th Fairway would obstruct these views of eastbound travelers approaching the golf course (see Figure 10, Proposed Views). Background views of the Casmalia Hills as experienced from westbound traffic on SR 1, which are presently compromised by telephone poles and supported lines along the northern Project boundary, would be only slightly impacted by these improvements (see Figure 11, Proposed Views). The loss of background views of the Casmalia Hills would be considered a *significant impact on aesthetics/visual resources*. This impact would be minimized because: 1) the duration of the impact experienced from eastbound SR 1 travelers travelling the 55 mph would be less than 15 seconds; and 2) the views of these significant visual resources would be replaced by substantial evergreen windrow vegetation, also considered a significant visual resource.

Impacts on background views experienced from within the RMGC of the Sierra Madre Mountains and of the Casmalia Hills would occur. Existing background views of existing open space and the Sierra Madre Mountains as experienced from the Hole 13 Teebox (see Figure 7, Proposed Views). and from the Hole 18 Teebox (see Figure 8, Proposed Views) would be substantially impacted by development of Willow Creek Neighborhood residences and associated screening landscaping. The loss of background views of the Sierra Madre Mountains and of the Casmalia Hills would be considered a *significant impact on aesthetics/visual resources*. As discussed above for impacts to SR 1 view corridors, this impact would be minimized because the views of these significant visual resources would be replaced by substantial landscape tree screening vegetation, also considered a significant visual resource, particularly the row of tall evergreens proposed on the boundary of the retention basin (see Figure 8, Proposed Views with Landscaping).

In contrast to the obstruction of background views of hillside and mountainous topography, proposed background views of the Sierra Madre Mountains experienced from Hole 6 Teebox (see Figure 5, Proposed View with Landscaping) and from Hole 15 Fairway (see Figure 9, Proposed View with

Landscaping) would be expanded with Specific Plan development. *Impacts on aesthetics/visual resources would be beneficial*.

Mitigation Measures and Residual Impacts

OCP EIR Mitigation VIS-5 elements have been incorporated in proposed Specific Plan design.

- *Development of structures shall be prohibited within 50 feet of the property line.* Hidden Valley residential lots would be located no less than 100 feet from the eastern property line, and all Willow Creek residential lots would be over 200 feet from the western property line.

- *New development shall be required to install and maintain landscape buffers along gateway roads of a minimum 35' in width, with sufficient plantings of major trees and shrubs to obscure parking areas from public view and to "break up" building masses*. Proposed landscape buffers are located at the Hidden Valley and Willow Creek Neighborhood private roadways from SR 1on the eastern and western Specific Plan boundaries. Landscaping includes major trees are provided along the Hidden Valley Neighborhood driveway (see Figure 2, Proposed View with Landscaping) and Willow Creek Neighborhood driveway (see Figure 9, Proposed View with Landscaping).

- *Any structure with the potential to obstruct views of the Solomon or Casmalia Hills from a public viewpoint or travel corridor shall be designed so as to preserve views of these hills to the maximum extent feasible*. Proposed residential lot envelopes have been designed to be recessed such that structural heights would be minimized relative to important public view corridors. Examples are the Hidden Valley Neighborhood residences along the eastern property boundary (see Figure 1, Proposed Views), and Willow Creek Neighborhood residences as experienced from the RMGC Hole 13 Tee Box (see Figure 7, Proposed View), and RMGC Hole 18 Tee Box (see Figure 8, Proposed View).

- *Excessive grading of scenic natural features and slopes in excess of 20% shall be prohibited*. Project grading has been designed to conform to Project site topography. As discussed above, residential building pads have been recessed into existing north-south trending undulating hillsides to minimize the contrast of proposed residential roof lines as experienced from important public view corridors. The grading would not result in degradation of scenic natural features and slopes experienced from these view corridors.

OCP EIR Mitigation KS21-VIS-1 elements have been incorporated in proposed Specific Plan design.

- *Extend Open Space Overlay along the central drainage corridor and the drainage corridor crossing the southwest corner to preserve riparian vegetation and prevent development on the steep slopes along the southern boundary.* Residential development would avoid both drainage corridors and all riparian vegetation would be preserved. The exception would be where the proposed secondary access would cross the central drainage corridor heading to the existing RMGC parking lot, but this infrastructure was anticipated and identified on the Key Site 21 site plan (Figure KS21-1). No residential lots would occur within 350 feet of the

southern Specific Plan boundary in the Hidden Canyon neighborhood, and within 250 feet in Willow Creek neighborhood; development in this area would completely avoid slopes of greater than 20 percent.

OCP EIR Mitigation KS21-VIS-2 elements have been incorporated in proposed Specific Plan design.

- *Install a minimum 50-foot landscaped buffer along Highway 1 for parcels designated residential*. No residential development would occur adjacent to SR 1. The nearest Willow Creek residential development would be over 1,110 feet south of SR 1, and the nearest Hidden Valley residential development would be over 550 feet south of SR 1. The proposed Neighborhood retention basin would be developed in the northeastern Specific Plan area adjacent to SR 1. A 50-foot landscaped buffer consisting of large open space trees (including coast live oak, London plane tree, California pepper, sycamore, Torrey Island pine, Digger pine, Canary island pine, Catalina ironwood, Melaleuca, Cork oak, and Valley oak) and small open space trees (including Monterey cypress, Island stone pine, California buckeye, California black walnut, and Pacific wax myrtle) would be planted adjacent and immediately south of SR 1 to screen the basin (Specific Plan Hidden Canyon Landscape Plan, Figure 8-5).

These measures would substantially reduce the Project's impact on aesthetics/visual resources. The residual impact would, however, would remain *significant and unavoidable* (Class I), similar to those identified in the OCP EIR.

Impact AES-2: ***Proposed residential construction would potentially result in short-term adverse aesthetic impacts during construction.***

1997 Impact Analysis

The OCP EIR did not specifically address the potential impact.

2018 Impact Analysis

Improper disposal of refuse or waste construction materials during project site grading and construction of residential structures, potentially resulting in construction materials and/or refuse blowing offsite, would adversely affect the aesthetic qualities of the site and surrounding properties. Short-term construction impacts during these periods on visual resources would be *potentially significant*.

Mitigation Measures and Residual Impact

AES-2.1 To prevent construction and/or employee trash from blowing offsite during construction, covered receptacles shall be provided onsite prior to commencement of grading or construction activities. The applicant or designee shall retain a clean-up crew to ensure that trash and all excess construction debris is collected daily and placed in provided receptacles throughout construction.

The residual impact on aesthetics/visual resources would be *significant but feasibly reduced to less than significant* (Class II).

Impact AES-3: ***Project buildout would substantially change the open space character of the project site to that of low density residential development.***

1997 Impact Analysis

General and site-specific impacts associated with the elimination of existing open space and change in character of the site are identified in Impacts VIS-1, VIS-14, VIS-17, and KS21 VIS-1 in the 1997 OCP EIR. Residential Plan buildout was considered to result in a substantial change to the existing open space character. This substantial change in the open space character of portions of the Project site, particularly experienced from public view corridors, was considered a *potentially significant, unmitigable impact on aesthetics/visual resources* (Class I).

Mitigation Measures and Residual Impacts

The OCP EIR provided the following mitigation that contributed to reducing incompatibilities with the conversion of open space to low density residential development:

VIS-3: All public and private retardation basins shall be designed to permit additional uses including active and passive recreation in more developed areas and wildlife habitat in more rural and biologically sensitive areas. The use of perimeter fencing shall be avoided to the maximum extent feasible. Where required, perimeter fencing shall be of a decorative nature in urban areas or designed to minimize interference with wildlife in more undeveloped areas. Perimeter landscaping of basins in urban areas shall consist of low maintenance trees and shrubs, as well as turf, etc. to accommodate recreational uses. Native trees, shrubs and groundcover shall be used within basins in undeveloped areas. Maintenance shall be determined through implementation of the Landscape-Open Space Maintenance District.

VIS-5: Except where demonstrated infeasible, parking lots, trash enclosures, and other impervious surfaces shall be placed in side and rear, rather than frontage areas, in all development along gateway roads.

2018 Impact Analysis

Buildout of the proposed Neighborhoods Specific Plan would convert 189 acres of open space within Key Site 21 to residential development. The OCP assumed buildout of 150 units, whereas the proposed project would build 146. The character of the site would substantially change from various views, both inside and outside the Golf Couse, by converting existing open space to low density residential housing. For example, views looking west and southwest to the proposed project site from SR 1 would be substantially impacted by the visible residences in the Hidden Valley neighborhood (see Figures 1and 2, Proposed Views). The existing open space character within the RMGC would also substantially change, as experienced seen from Holes 13 and 18 Tee Boxes (see Figures 7 and 8, Proposed Views, respectively).

Three retention basins are proposed: two in the Willow Creek Neighborhood in the vicinity of the RMGC Hole 15 Green and RMGC Hole 18 Tee Box; and one in the Hidden Creek Neighborhood straddled by the entrance driveway loop. Specific Plan Design Standards identify that these basins would be landscaped with native grasses and sedges (see Figure 8, Proposed View with Landscaping, that depicts the basin adjacent to the RMGC Hole 18 Tee Box). The basins would not be fenced. They would not be feasibly incorporated as an element within the existing RMGC. The Hidden Creek Neighborhood retention basin would provide for wildlife habitat as the existing wetland resource in this location has historically.

Overall the change in open space character resulting from buildout of the Neighborhoods Specific Plan would be *potentially significant*, similar to the OCP EIR.

Mitigation Measures and Residual Impacts

VIS-5: *Except where demonstrated infeasible, parking lots, trash enclosures, and other impervious surfaces shall be placed in side and rear, rather than frontage areas, in all development along gateway roads.*

All proposed infrastructure visible from gateway roads, including the Hidden Valley and Willow Creek Neighborhood driveways, would be screened from viewers passing on SR 1. Proposed landscaping surrounding the development would reduce the visual impact associated with low density housing and proposed safety netting along the western Specific Plan boundary adjacent to RMGC Hole 15.

VIS-7: *All new development adjacent to areas within the open space overlay shall be sited and designed in such a manner to protect and enhance the visual character of the overlay area through use of landscape buffers, shielding of night lighting, screening of parking areas, unit orientation, etc. In semi-rural areas, natural building materials and colors compatible with surrounding terrain (earthtones and non-reflective paints) shall be used on exterior surfaces of all structures, including water tanks and fences. Understories and retaining walls higher than six (6) feet shall be in tones compatible with surrounding terrain using textured materials or construction methods which create a textured effect. Retaining walls shall be landscaped to provide screening from adjacent open space areas, using native species where appropriate*.

Proposed Specific Plan Design Standards address these requirements:

Design Guidelines 8.4.7 Exterior Colors
The following guidelines shall be used when choosing exterior colors for structures, soffits and other vertical planes higher than six feet (6'-0").

- Color schemes chosen for the exterior of structures, including the roof, must be responsive to those predominant in the surrounding woodlands and grasslands. The goal is to blend the buildings into the landscape as much as possible and to avoid stark contrast with the surroundings. Subtle, warm,

earth tones, and neutral colors with complimentary accents. "White" colors are discouraged except trim and accents.

- Colors shall have "low-reflective values" for paint rating scale. The lower numbers indicate less light reflected from the color. An acceptable range for exterior paint selections is LRV 18-47, in typical muted tones, as described above.

- Simple color schemes, with no greater than three (3) chosen colors are recommended. Colors shall complement each other, avoid contrasting colors, especially when choosing colored roofing.

- Certain wall materials with distinct coloring in their natural state, shall be treated as an overall element of the overall color palette.

These guidelines would apply to non-residential structures such as water tanks and fences.

All retaining walls outside of residential building footprints would not exceed 4 feet in height such that they would not be subject to the OCP EIR Mitigation and not result in a significant impact on aesthetics/visual resources.

These measures, in addition to the proposed Specific Plan Design Guidelines addressed above, would substantially reduce potential Project impacts on aesthetics/visual resources, but the residual impact would remain *potentially significant and unavoidable* (Class I). The impact would be similar to that previously designated in the OCP EIR.

Impact AES-3.1: ***Residential development, including streets and recreational facilities, would introduce new glare sources that would substantially degrade existing visual conditions.***

1997 Impact Analysis

The buildout of the OCP was found to introduce a substantial amount of new light and glare, representing a significant change in the level of night light illumination when compared to what is presently generated. Impacts on visual resources were found to be *potentially significant but feasibly mitigated* (Class II).

Mitigation Measures and Residual Impacts

The OCP EIR provided the following mitigation that contributed to reducing incompatibilities with the conversion of open space to low density residential development:

VIS-5: Outdoor lighting shall be hooded and shielded with lights be directed toward the ground and/ or away from surrounding properties.

Exterior night lighting adjacent to areas with the Open Space Overlay shall be hooded to minimize spread of light and constructed in such a manner to direct overflow away from the open space areas.

The residual impact on visual resources was *significant, and unavoidable* (Class I).

2018 Impact Analysis

Proposed 2018 Neighborhoods Specific Plan Section 8.8.4 Design Guidelines, Exterior Lighting incorporates the direction identified in OCP Mitigation VS-5 and includes further the following standards:

- No lighting may be directed into open space areas. Exterior lighting within one hundred feet of open space shall be shielded and aimed as needed to avoid spillover into open space areas.
- Lights shall have down-directed and other discreet lighting features. All luminaries shall be shielded to limit glare and shall be as low wattage as practical to achieve safe light levels.
- Security lighting shall be shielded, hooded, recessed or located in such a manner that lighting illuminates only the intended area and avoid off-site flare or spilling over of unnecessary illumination. Security light globes shall not be visible from a distance of twenty feet (20'-0") from the source.
- Entries shall be illuminated with ground mounted directional lights that illuminate the monument sign faces and do not produce reflective glare or light spill to surroundings.
- Exterior lighting within one hundred feet (100'-0") of open space must be shielded and aimed as needed to avoid spillover into open space areas. Fixtures shall direct illumination downward or toward architectural elements. Security lighting shall be shielded, hooded, recessed or located in such a manner that lighting illuminates only the intended area and avoid off-site glare or spilling or spilling over of unnecessary illumination. Security light globes shall not be visible from a distance of twenty feet from the source. The use of low-voltage lighting is encouraged wherever possible such as pathways or driveways, to reduce energy.

Mitigation Measures and Residual Impacts

These Design Standards would reduce impacts on aesthetics/visual resources to *adverse but less than significant* (Class III). Project impacts on aesthetics/visual resources would be less than the OCP EIR.

Impact AES-4: ***The Specific Plan Design Guidelines restrictions on residential material, and roof color would result in development compatible in appearance with surrounding structures.***

1997 Impact Analysis

Key Site 21, as identified in the 1997 OCP EIR, is mainly undeveloped open space, with the only development being the Rancho Maria Golf Course. The OCP lacked guidelines regarding color choice for structures and roofs, and did not consider compatibility impacts in their analysis.

2018 Impact Analysis

The only surrounding development in the Neighborhoods proposed project site is the Rancho Maria Golf Course. The Golf Course is mainly open space used for recreational purposes. There are no other surrounding structures, such as houses or buildings, in Key Site 21. The RMGC Clubhouse and Maintenance Garage are the only structures visible from SR 1 (see Figure 2, Existing View). These structures are in the far background on top of the hill and are only partially visible as they are surrounded and partly covered by trees and shrubs. The roof of this structure is earth-tone brown and blends in with its natural surroundings.

The Neighborhoods Specific Plan Section 8.4.6 Design Guidelines, Exterior Materials and Finishes identifies design standards that would ensure that proposed residential development would be compatible with its physical surroundings:

a. Materials and finishes will play a key role in maintaining the semirural California feeling of the Neighborhoods Plan area. Natural materials that harmonize and blend with the surrounding environment are encouraged. Materials such as brick, stone, wood, and light textured stucco should be used. Care should be taken not to mix too many types of materials.

b. Inappropriate materials include highly reflective or sleek surfaces, precision block, metal, large unbroken expanses of stucco or glazing.

c. The materials and finishes should be authentic to the architectural style chosen. Careful detail should be taken at the intersections of different materials to avoid awkward transitions.

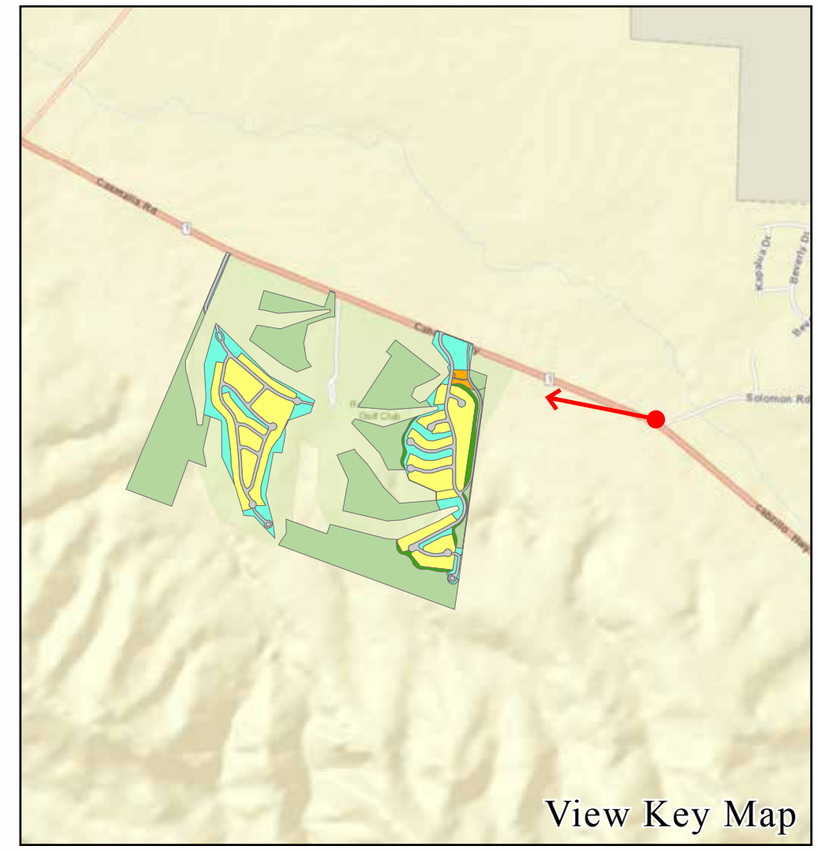
In addition, Section 8.4.7 Design Guidelines, Exterior Colors highlight some guidelines for choosing exterior colors for structures:

a. Subtle, warm, earth tones, and neutral colors are recommended to blend with the surrounding landscape. Bright white colors are discouraged. Certain materials such as stone and brick have distinct coloring in their natural state and should be thought of as an element of the color palette to be incorporated into the overall design. Colors shall have “low-reflecting values” for paint rating scale.

Implementation of the Design Guidelines would ensure Specific Plan residential buildout would be compatible with surrounding structures. Impacts on aesthetics/visual resources would be *adverse, but less than significant* (Class III).

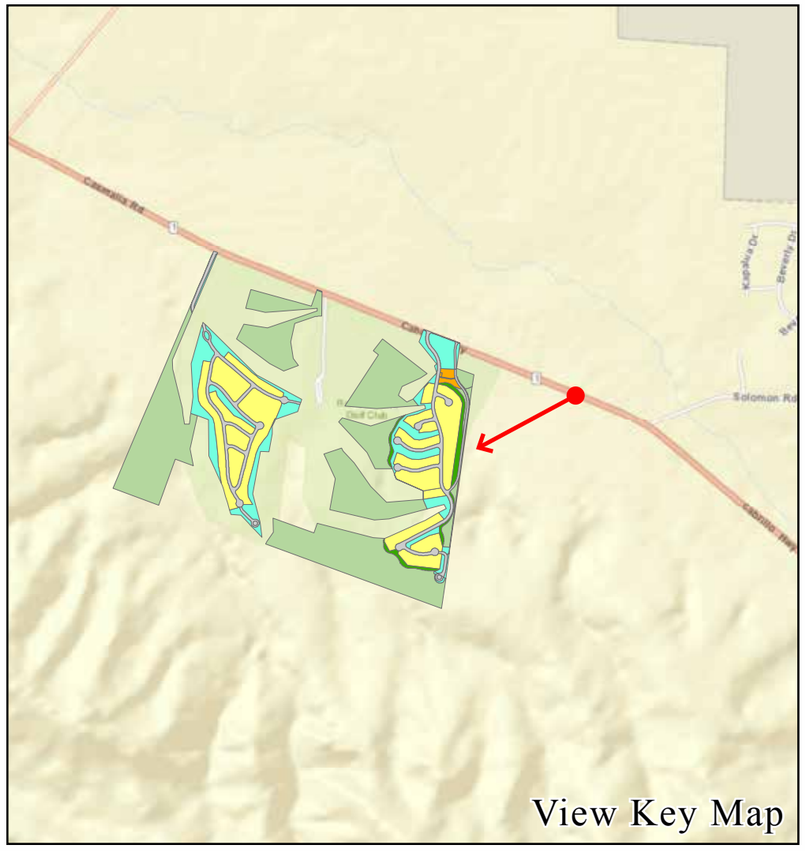
Mitigation Measures and Residual Impacts

As impacts on aesthetics/visual resources would be less than significant, no additional mitigation is required. The residual impact would be *adverse, but less than significant* (Class III).



SOURCE: Videoscapes

View Simulation - Hidden Canyon
Figure 1



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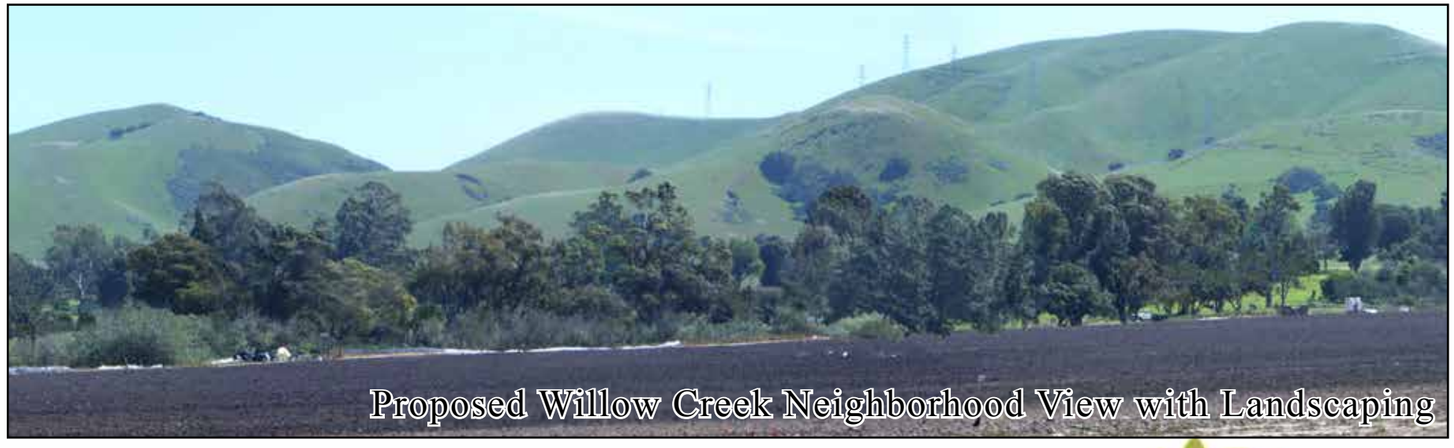
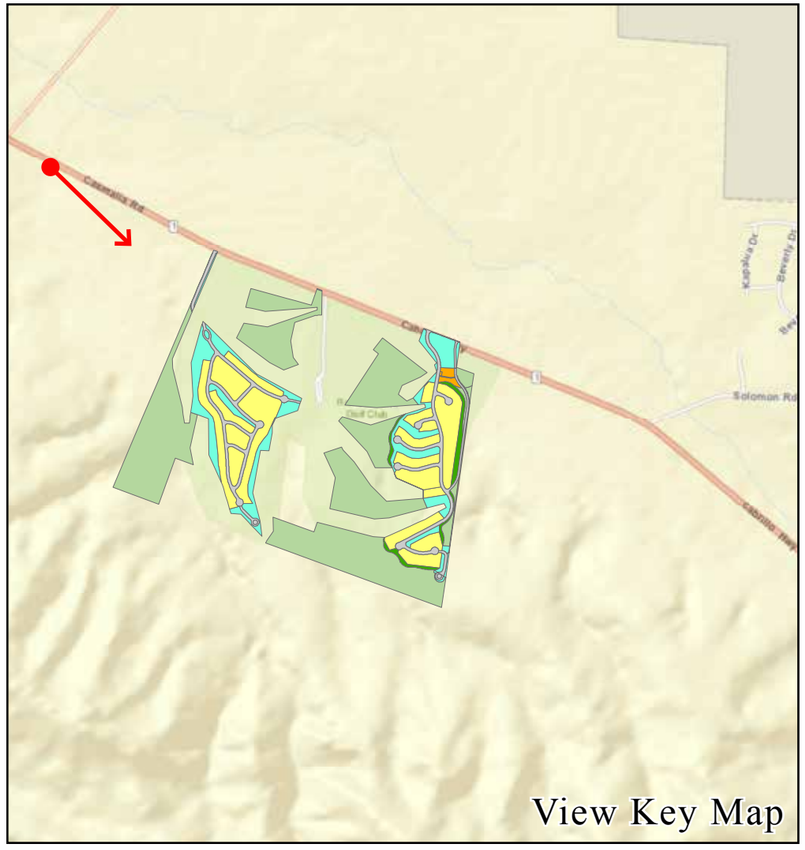
View Simulation - Hidden Canyon
Figure 2

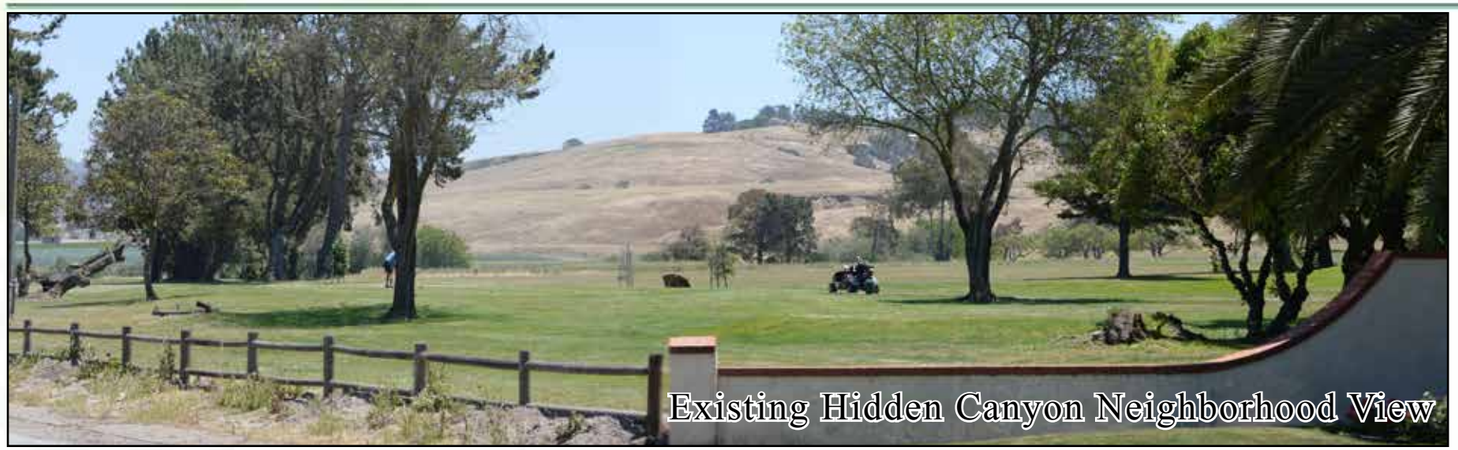


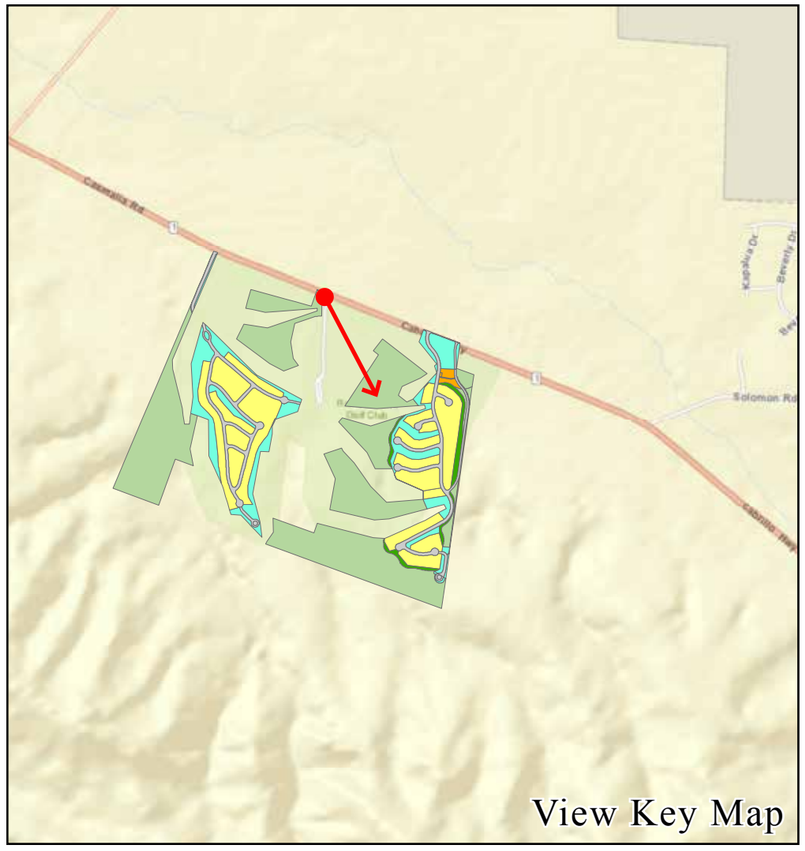


SOURCE: Videoscapes

View Simulation - Willow Creek: State Highway 1 Looking East

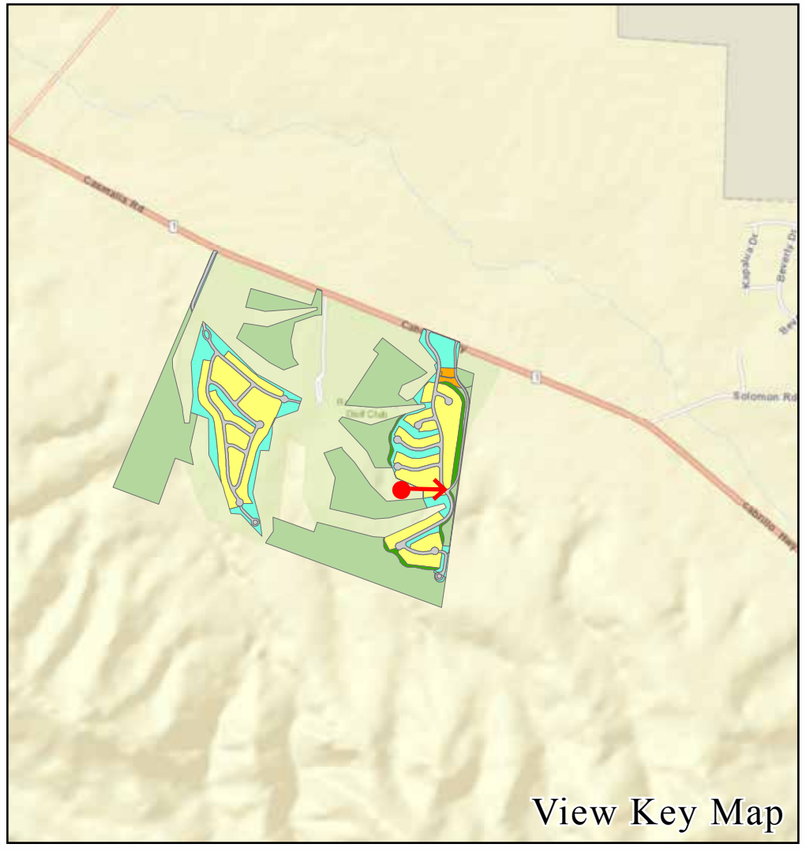
Figure 3





SOURCE: Videoscapes

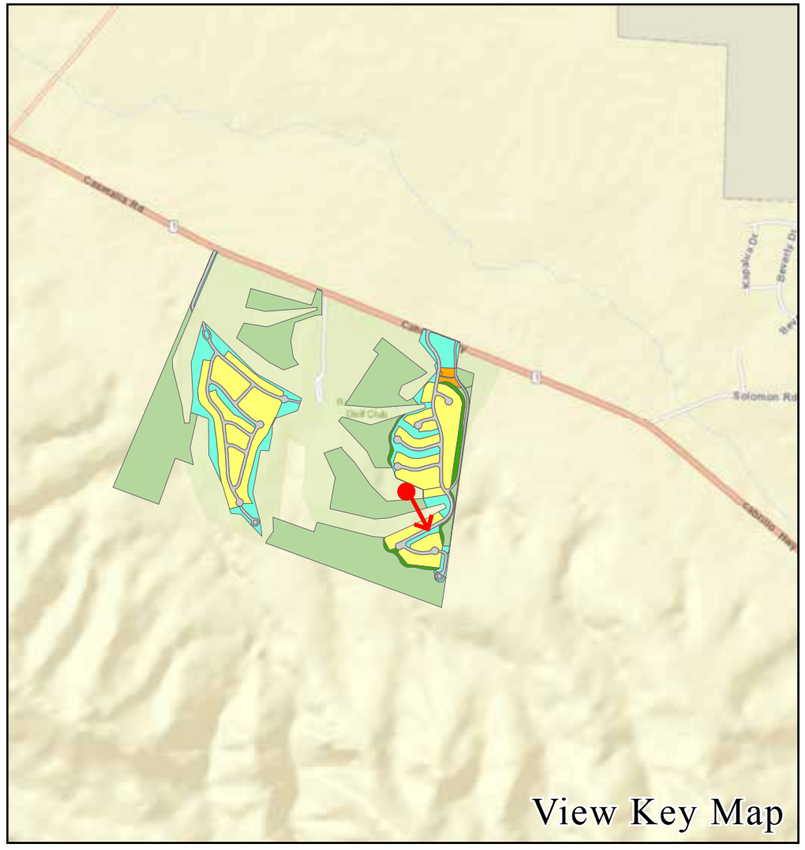
View Simulation - Hidden Canyon
Figure 4



SOURCE: Videoscapes

View Simulation - Hidden Canyon: Sixth Hole Looking East

Figure 5



SOURCE: Videoscapes

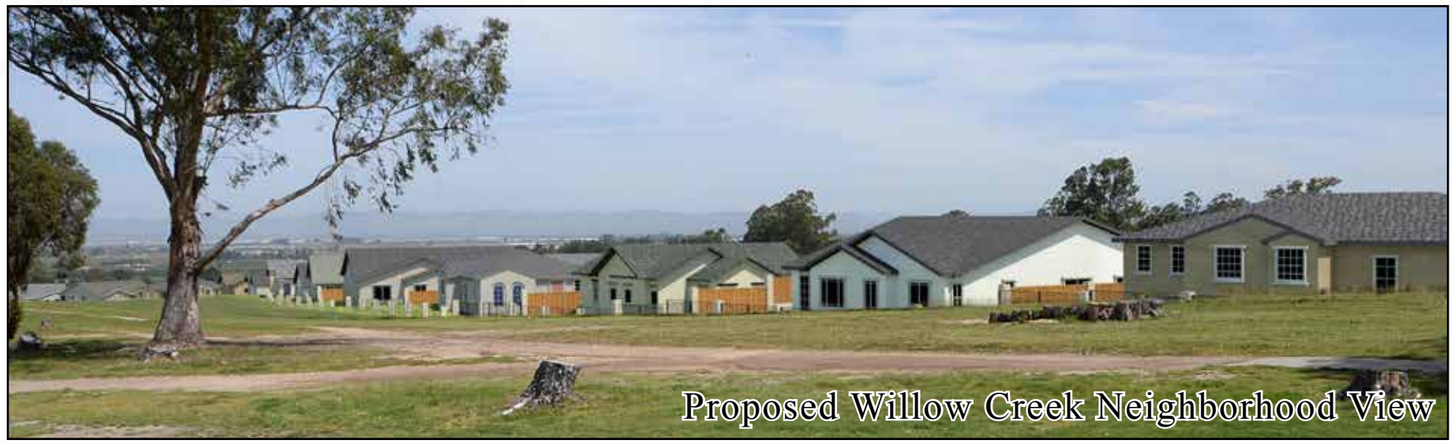
WILLOW CREEK KS 21 HIDDEN CANYON

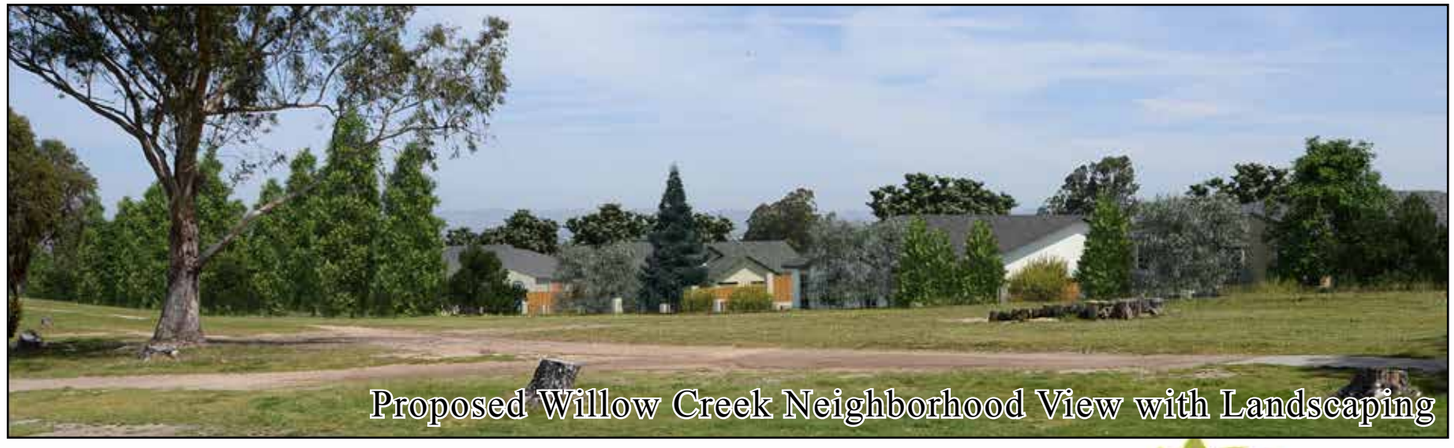
SPECIFIC PLAN
January 2018

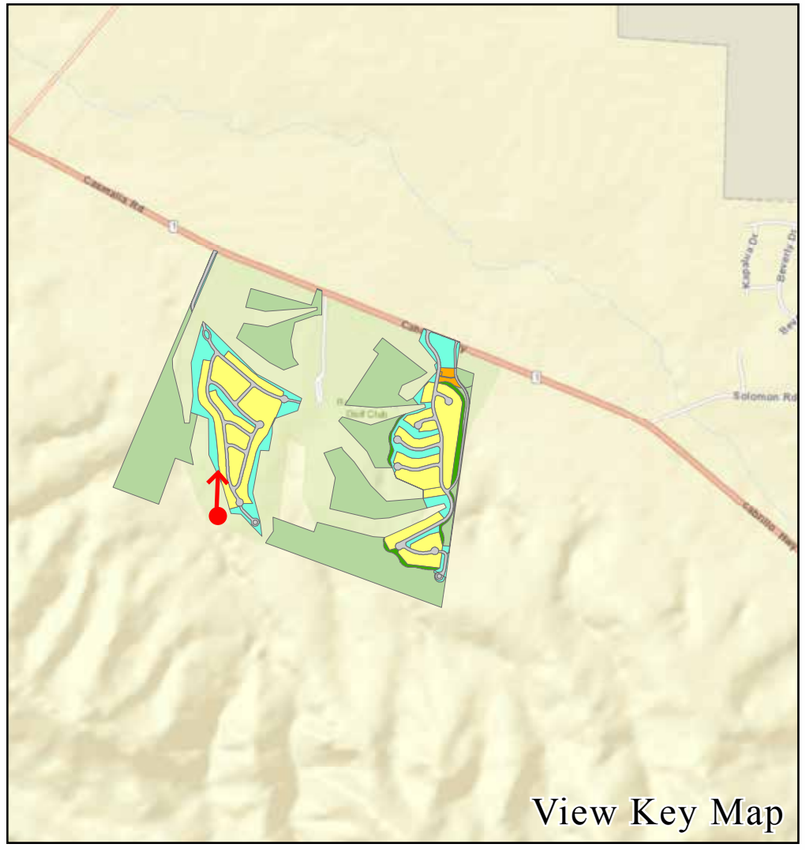
Orcutt Rancho, LLC

View Simulation - Hidden Canyon: Sixth Hole Looking Southeast

Figure 6





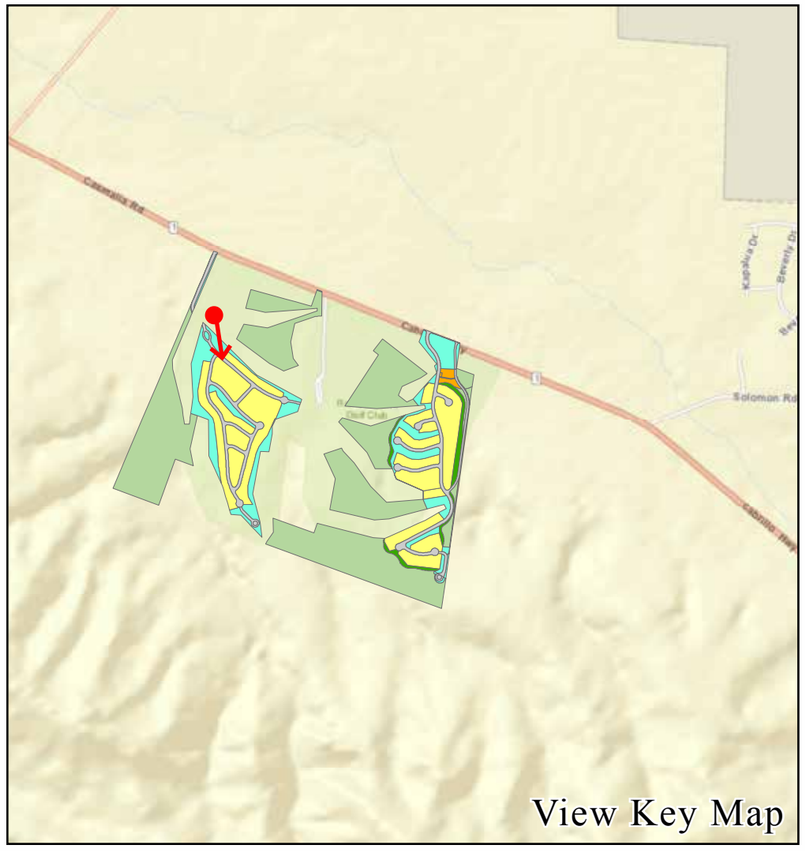


SOURCE: Videoscapes

WILLOW CREEK KS 21 HIDDEN CANYON

View Simulation - Willow Creek: Hole 13 Tee Box Looking North

Figure 7

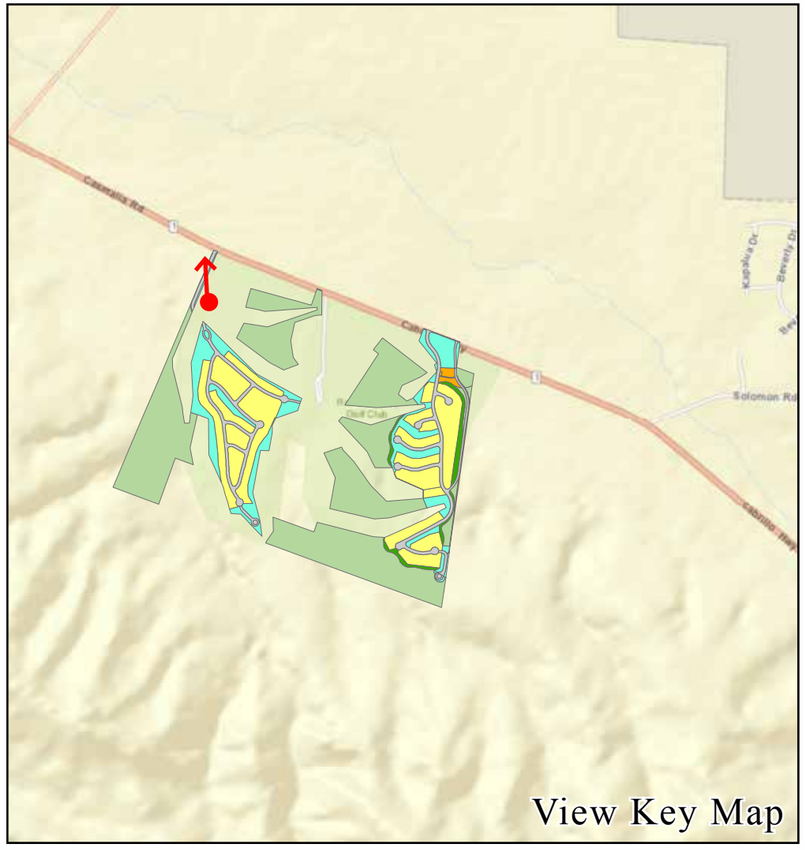


SOURCE: Videoscapes

WILLOW CREEK KS 21 HIDDEN CANYON

View Simulation - Willow Creek: Hole 18 Tee Box Looking South

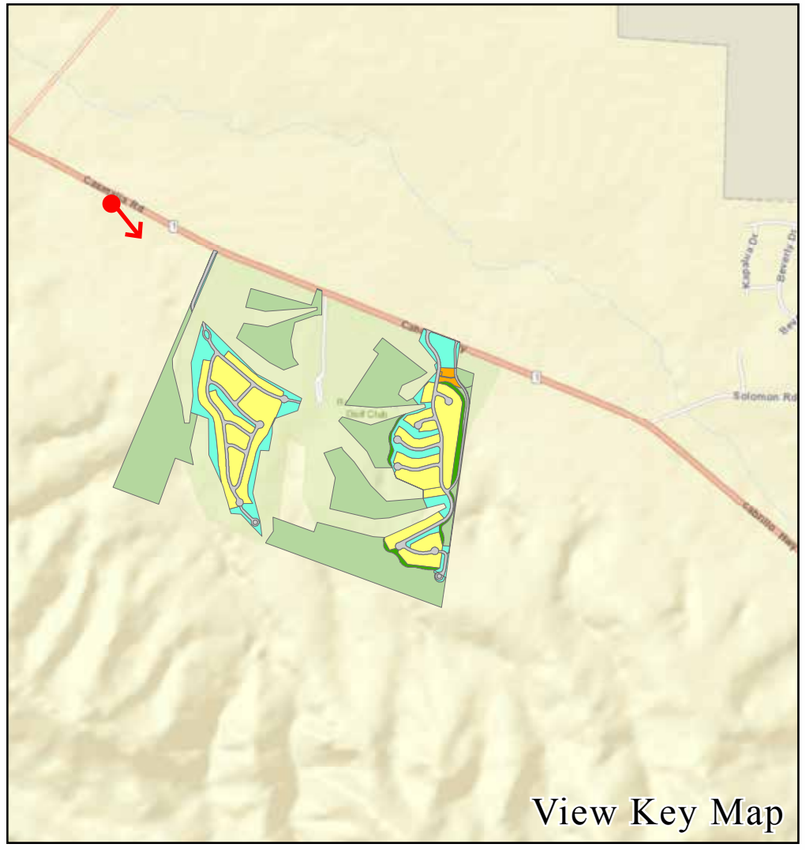
Figure 8



SOURCE: Videoscapes

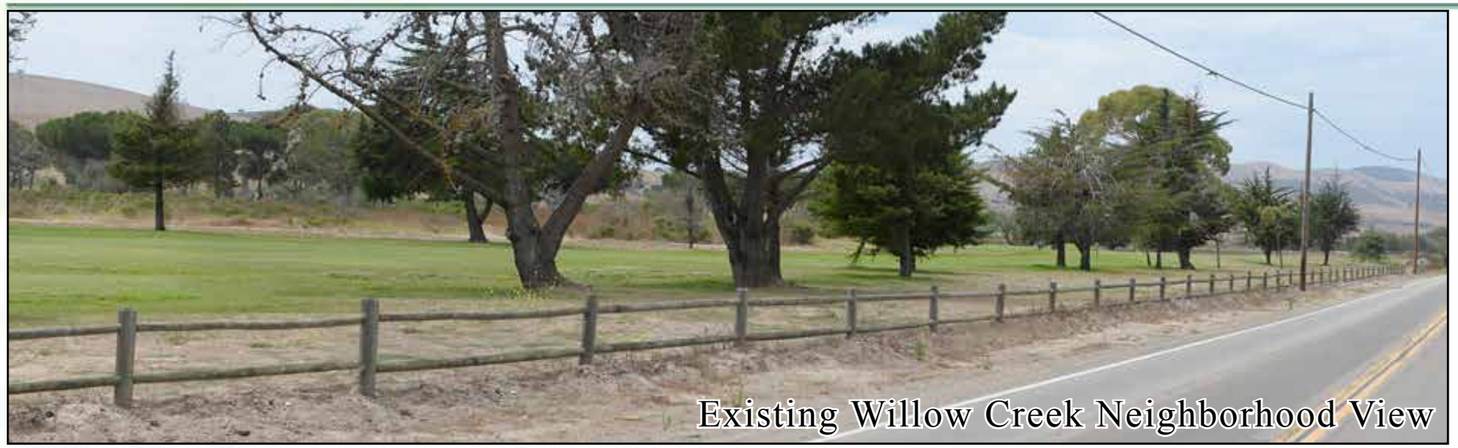
View Simulation - Willow Creek: Hole 15 Tee Box Looking North

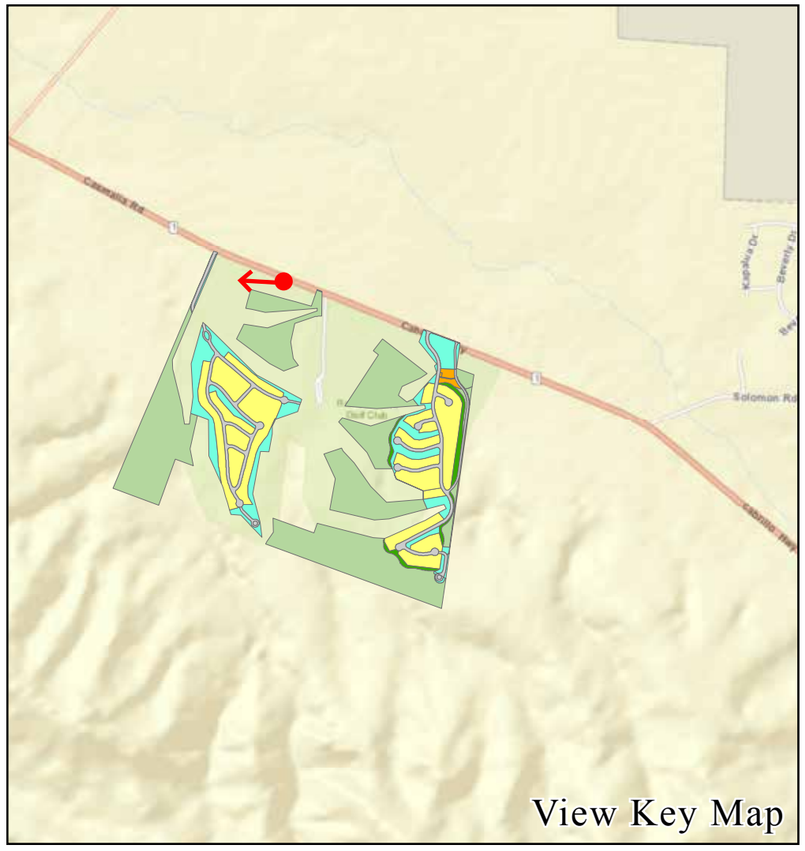
Figure 9



SOURCE: Videoscapes

View Simulation - Willow Creek
Figure 10





SOURCE: Videoscapes

View Simulation - Willow Creek
Figure 11

3.2 AIR QUALITY

This section evaluates short-term (construction) and long-term (operational) impacts to air quality that would potentially occur as a result of implementation of the proposed 2017 Neighborhoods Specific Plan (Project). Impacts are evaluated for their significance based on the County of Santa Barbara Significance Determination Thresholds. The Santa Barbara County Air Pollution Control District's (SBCAPCD) guidance and thresholds are applied as appropriate. Technical information related to the analysis below is contained in Appendix A to this environmental analysis.

3.2.1 Previous CEQA Review

Orcutt Community Plan

The Orcutt Community Plan (OCP) EIR identified *significant, but feasibly mitigated* (Class II) air quality impacts associated with the generation of fugitive dust and particulates less than 10 microns in diameter (PM_{10}) during construction-related activities, and *significant and unavoidable impacts* (Class I) on air quality resulting from ozone precursor emissions associated with long-term planned growth and development activities. In addition, buildout of the OCP was determined to result in *significant and unavoidable* impacts (Class I) by allowing residential development at a rate that was inconsistent with the then current 1994 Clean Air Plan (1994 CAP). Site specific analysis of Key Site 21 (Neighborhoods Specific Plan area) relative to air quality was not performed in the OCP EIR.

OCP Policies and Development Standards for air quality include Policy AQ-O-1, Prog. AQ-O-1.1, Prog. AQ-O-1.2, and Action AQ-O-1.3, which encourage land use planning and development design that reduce air pollution through development of transportation infrastructure supportive of alternative modes of transportation and pedestrian oriented developments. Policy AQ-O-2 encourages implementation of appropriate construction restrictions and control measures to reduce significant fugitive dust and PM_{10} emissions. Policy AQ-O-3 promotes the use of alternative fuels, solar energy systems, and use of construction techniques designed to conserve energy and minimize pollution. The following OCP Policies and Development Standards for transportation also contribute to improved air quality. Policy CIRC-O-1 and Action CIRC-O-1.1 encourage the implementation of long-term improvements to roadways and alternative transportation facilities, such as transit and alternative modes of transportation (e.g., bikeways and pedestrian paths). Policy CIRC-O-6, Action CIRC-0-6.1, and Action CIRC-O-6.2 encourage development of all feasible forms of alternative transportation, including transit services and park-and-ride facilities. Policy CIRC-O-7 encourages Caltrans to accommodate planned bicycle facilities in highway overpasses. Policy CIRC-O-0 requires development to be sited and designed to provide maximum access to non-motor vehicle forms of transportation where feasible.

The following potentially significant air quality impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact AQ-1: Significant ozone precursors. Implementation of the proposed Community Plan would result in *potentially significant* air quality impacts resulting from significant emissions of ozone precursors (ROC and NO_x) to a non-attainment air basin for ozone. After mitigation, residual impacts would remain *significant and unavoidable* (Class I).

Impact AQ-2: Dust and PM_{10} generation. Implementation of the Community Plan would result in *potentially significant* air quality impacts associated with the generation of fugitive dust and PM_{10} emissions during construction related activities. Residual impacts could be *mitigated to less than significant* levels (Class II).

Impact AQ-3: Inconsistent with Clean Air Plan growth rate. Buildout of the proposed Community Plan could result in *potentially significant* air quality impacts by allowing residential development at a rate which is inconsistent with the air quality attainment objectives contained in the 1994 Santa Barbara Clean Air Plan (CAP). Residual impacts would remain *significant and unavoidable* (Class I).

3.2.2 Relevant Changes

Project Description Changes

The location of the Neighborhoods Specific Plan lots are consistent with the development of the OCP. The proposed 2017 Neighborhoods Specific Plan includes the following changes from the previously approved development plan for Key Site 21 in the OCP EIR relevant to the assessment of air quality impacts:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- Grading for the tracts, including roadways and building pads, is estimated to be approximately 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The grading is designated to result in a balance of cut and fill between the two neighborhoods. No grading would be imported and/or exported.
- The Neighborhoods Specific Plan would include three new roadways off of SR 1 to access the project site instead of from SR 1 and the existing golf course access road identified for the OCP Key Site 21 buildout.
- The proposed Neighborhoods Specific Plan includes 97 acres of undisturbed open space, 72 acres more than conceptually protected in the OCP Key Site 21 buildout.

Project Sustainable Design Features

The proposed Neighborhoods Specific Plan incorporates various design features that would reduce air pollutant emissions associated with operation of the Project. These include: 1) providing homes with appropriate wiring for future access to solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent, and 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

Regulatory Setting Changes

Appendix A discusses the key federal, state, and local regulatory efforts related to air quality that have been updated since the 1997 OCP EIR was prepared, and that could apply to development

under the proposed Project and the users of such development.

Existing Setting

Climate and Topography

The weather of the Santa Barbara region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the mid-70s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains (WRCC 2017). The proposed Project is located within the South Central Coast Air Basin (SCCAB), the climate of which is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific. The topography in the Santa Barbara region varies greatly, from beaches on the North to mountains and valleys in the north; along with local meteorology, it influences the dispersal and movement of pollutants in the basin. The mountains to the north prohibit dispersal of pollutants in that direction and help trap them in inversion layers. The Neighborhoods Specific Plan occurs at the base of the northern flanks of the east-west trending Casmalia Hills. The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds. Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

Appendix A discusses the environmental setting of the proposed Project in more detail, including air pollutants and effects and sensitive receptors in the Project area.

3.2.3 Impacts

Impacts and mitigation measures described in the 1997 OCP EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 OCP EIR are compared with those that are anticipated to occur under the proposed Project. Appendix A discusses the 2017 air quality impacts of the proposed Project in more technical detail, as well as thresholds of significance and methodology for the air quality analysis.

Impact AQ-1: ***The Project would not conflict with or obstruct implementation of the applicable air quality plan.***

<u>1997 Impact Analysis</u>

The OCP EIR identified *potentially significant* (Class II) air quality impacts due to buildout of the OCP Area allowing residential development at a rate which is inconsistent with the air quality attainment objectives contained in the 1994 Santa Barbara Clean Air Plan (CAP).

Mitigation Measures and Residual Impact

The OCP EIR identified the following mitigation measures that would minimize potential inconsistency with the 1994 CAP:

Mitigation AQ-9.1: P&D in coordination with APCD should develop an incentive-based emission reduction program that offers incentives such as expedited permit processing, decreased fees, etc., if a project is oriented and designed to reduce vehicular traffic.

Recommended Mitigation AQ-11: Energy conservation measures are recommended for all projects to reduce the need for natural gas and electricity. Although Santa Barbara County does not have power plants, a portion of our electricity comes from burning fossil fuels which contributes substantially to regional air pollution. Measures to reduce the consumption of energy include the following:

- Install light-colored roofing, energy-efficient built-in appliances, lighting and temperature controls and window treatments to reduce energy consumption.
- Install low NOx or solar water and pool heaters.
- Landscape with drought-tolerant, deciduous trees to shade buildings in the summer and allow for passive solar heating in the winter.
- Design building orientation to maximize natural lighting and passive solar heating and cooling.
- Use low-emission building materials such as water-based paints, and bricks, stone or concrete (instead of asphalt) for parking lots.

The residual impact on consistency with the applicable air quality plan after mitigation would be *significant and unavoidable* (Class I) due to future residential development rates exceeding growth projections in the Regional Growth Forecast '94 and 1994 CAP.

2018 Impact Analysis

The 2016 Ozone Plan was adopted by the Santa Barbara County Air Pollution Control District (SBCAPCD) Board on October 20, 2016 and is the most recent applicable air quality plan. The 2016 Ozone Plan relies primarily on the land use and population projections provided by the Santa Barbara County Association of Governments (SBCAG) and California Air Resources Board (CARB) on-road emissions forecasts as a basis for vehicle emissions for all of Santa Barbara County incorporated and unincorporated areas. If a project proposes development that is greater than that anticipated in the local plan and SBCAG's growth projections, the project might be in conflict with the 2016 Ozone Plan and may contribute to a potentially significant cumulative impact on air quality. Based on the nature of the proposed Project, implementation of the Project would not result in development in excess of that anticipated in local plans or increases in population/housing growth beyond those contemplated by SBCAG. As such, the project would not conflict with or obstruct implementation of a local air quality plan, and therefore, impacts associated with consistency of local plans would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As the Neighborhoods Specific Plan would not exceed the region's anticipated growth and would incorporate factors of OCP EIR Recommended Mitigation AQ-11, the impact related to consistency with the applicable air quality plan would be *adverse, but less than significant* (Class III), considerably less than impacts identified in the 1997 OCP EIR. As impacts would be less than significant, no

mitigation measures are required. All standard SBCAPCD conditions would apply.

Impact AQ-2: ***The Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, nor result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment.***

1997 Impact Analysis

The OCP EIR identified *potentially significant* (Class II) air quality impacts due to implementation of the proposed OCP resulting in significant emissions of ozone precursors (ROC and NO_x) to a non-attainment air basin for ozone. Key Site 21 was identified as having potential to exceed the 25 lbs./day threshold for ROC or NO_x emissions. The OCP EIR identified *potentially significant* (Class II) air quality impacts associated with the generation of fugitive dust and PM_{10} emissions during construction related activities associated with implementation of the OCP.

Mitigation Measures and Residual Impact

The OCP EIR identified the following mitigation measures that would minimize potential inconsistency with the 1994 CAP:

Mitigation AQ-1: Future project construction in Orcutt shall be consistent with Santa Barbara County APCD air pollution control measures to reduce stationary and mobile source ROC and NOx emissions.

Mitigation AQ-2: Future project construction in Orcutt shall follow all requirements of the Santa Barbara County APCD, and shall institute Best Available Control Technology (BACT) where necessary to reduce emissions below threshold levels. Mitigations must be required whenever project-specific construction impacts for nitrogen oxides (NOx) or reactive organic compounds (ROC) are identified as potentially significant. The following is a list of control strategies that may be used.

a. If standard diesel construction equipment is used and emission factors from EPA publication AP-42 are used to estimate emissions, proper implementation of the following mitigation measures package shall be considered to achieve up to a 40 percent reduction in NOx emissions and a 15 percent reduction in ROC emissions (exhaust hydrocarbons plus aldehydes), from the standard emission factors. All of the following shall be implemented when feasible, in order to be given these emission reduction credits, for each piece of eligible construction equipment:
   - Maintain engine and emissions system in proper operating condition;
   - implement two-degree engine timing retard; o install high pressure fuel injectors; and
   - use reformulated diesel fuel.

The APCD considers this package of control measures to be the best available technology to mitigate NOx and ROC emissions from standard diesel construction equipment.

b. Alternatively, the applicant may elect to demonstrate a 40 percent NOx reduction for the total emissions from the project's construction equipment mix or on a fleet-wide basis, i.e., some construction machinery may be replaced with lower emitting equipment, some may be over-

controlled and some under-controlled. The applicant shall provide sufficient information to the monitoring agency to verify the NOx reduction. The following should be considered in demonstrating the 40 percent reduction:

- Diesel equipment in the project's construction equipment mix, that emit less than 6.9 gms/bhp-hr of NOx, according to manufacturer's specifications, are considered mitigated to the maximum extent feasible.
- All diesel vehicles are required to use reformulated diesel fuel. Use of reformulated diesel alone can reduce NOx emissions by approximately 4 percent and ROC emissions by 15 percent in older engines.
- Wherever feasible, diesel equipment such as, pumps and generators, may be replaced by electric equipment. Although gasoline-powered equipment with catalytic converters may be used, evaporative emissions may cancel any exhaust emission benefits. Clean-fueled vehicles may be substituted for diesel or gasoline-powered vehicles, if feasible.

c. To make up for any shortfall caused by not implementing or partially implementing the recommended control technology by offsite mitigation measures, the APCD should be contacted to determine appropriate offsite measures for the project.

Mitigation AQ-3: The County should work with Santa Maria Area Transit (SMAT) to extend and expand the current two route system in the OPA. The traffic fee program developed for the OPA should include provisions for expanded and/or enhanced transit infrastructure facilities such as covered bus stops, bus pullouts, and pedestrian facilities adjacent to bus stops. Provision of covered bus stops, pull-outs, and pedestrian facilities adjacent to bus stops should also be considered as part of new development.

Mitigation AQ-4: In its long range land use planning efforts, the County shall seek to provide access to retail, commercial, recreational, and educational facilities via transit lines, bikeways, and pedestrian trails.

Mitigation AQ-5: The County should coordinate with Caltrans to incorporate park-and-ride facilities into planned freeway interchange improvement projects (such as at the UVP/U.S. 101 interchange). The County should also investigate the feasibility of implementing a formal park-and-ride facility at the Clark Avenue/U.S. 101 interchange and the Clark Avenue/Route 135 interchange. Implementation of facilities at these locations should be incorporated into the developments planned for the Key Sites located adjacent to the interchanges.

Mitigation AQ-6: The County shall develop a TDM program for implementation with development of new commercial and job-based developments. TDM measures to encourage carpooling, bicycling, compressed work weeks, telecommuting, the use of transit, etc., should be considered as TDM measures for new commercial and job-based developments.

Mitigation AQ-7: The County shall revise the existing off-site road impact fee to a new Transportation Impact fee to allow an increased level of funds to be allocated to the implementation of pedestrian, bike path and transit improvements.

Mitigation AQ-8: The County shall provide funding for new and expanded park and ride facilities in close proximity to long distance commuter roadways (i.e.: Hwy 101 and Hwy 135), provide additional

funds for long distance commuter service such as the clean air express and work with the City of SM to improve transit services between the two communities.

Mitigation AQ-9: To the maximum extent feasible, the County shall utilize land use planning techniques which encourage the use of alternative transportation, including construction and/ or retrofit of mixed use neighborhoods, increased residential densities in close proximity to job and shopping opportunities, and provision of medium to high density residential along major travel corridors.

Mitigation AQ-9.1: P&D in coordination with APCD should develop an incentive-based emission reduction program that offers incentives such as expedited permit processing, decreased fees, etc., if a project is oriented and designed to reduce vehicular traffic.

Mitigation AQ-10: These measures are required for all projects involving earthmoving activities regardless of the project size or duration. Proper implementation of these measures is assumed to fully mitigate fugitive dust emissions.

- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible.
- Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.
- If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.
- After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.
- Prior to land use clearance, the applicant shall include, as a note on a separate information sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans.

As ROC and NO_x emissions generated as a result of implementation of the OCP would contribute substantial ozone precursor emissions to a non-attainment air basin for ozone, these residual impacts would remain *significant and unavoidable* (Class I). As short-term construction-related NO_x emissions would contribute to background pollution levels and are considered insignificant, and no mitigation measures are required for short-term construction related NO_x emissions, these residual impacts would be considered adverse but *less than significant* (Class III). While grading and site

preparation activities associated with full buildout of the OCP would generate fugitive dust and PM_{10} emissions, proper implementation of the identified mitigation measures is assumed to fully mitigate fugitive dust emissions, and residual impacts would be *significant but feasibly mitigated to less than significant* (Class II).

2018 Impact Analysis

Construction

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Pollutant emissions associated with construction activity were quantified using the California Emissions Estimator Model (CalEEMod). As shown in Table 6 of the Air Quality Technical Report (see Appendix A), annual construction emissions would not exceed the significance thresholds for VOC, CO, NO_x, and PM_{10}, SO_x or $PM_{2.5}$. Therefore, short-term construction-related air quality impacts would be *less than significant* (Class III), less than impacts identified in the 1997 OCP EIR. Compliance with SBCAPCD Rule 302, Visible Emissions, would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. Therefore, the County's standard conditions for dust control will further mitigate any impacts from related to fugitive dust, and fugitive dust impacts would be *adverse, but less than significant* (Class III), and less than impacts identified in the 1997 OCP EIR.

Operation

Operation of the Project would generate ROC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips from future residents; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; and energy sources. Pollutant emissions associated with long-term operations were quantified using CalEEMod. As shown in Table 7 of the Air Quality Technical Report (see Appendix A), mobile source emissions would not exceed the County's operational mobile thresholds for ROC and NO_x of 25 pounds per day of either pollutant. Additionally, total emissions would not exceed the combined source emissions threshold for ROC, NO_x, and, PM_{10}. Therefore, impacts associated with project-generated operational criteria air pollutant emissions would be *adverse, but less than significant* (Class III), and considerably less than impacts identified in the 1997 OCP EIR.

Mitigation Measures and Residual Impact

As impacts would be less than significant, no mitigation measures are required. Potential impacts would be adequately addressed through existing building design and standard conditions requiring implementation of standard SBCAPCD dust control reduction practices and construction equipment control measures.

Impact AQ-3: ***The Project would not expose sensitive receptors to substantial pollutant concentrations.***

1997 Impact Analysis

Health impacts of a project were not required to be addressed by SBCAPCD guidelines in 1997. Therefore, the 1997 OCP EIR did not include an impact statement or analysis relating to health risk impacts.

2018 Impact Analysis

Construction

Project construction would result in emission of diesel particulate matter from heavy construction equipment and trucks accessing the site. Diesel particulate matter is characterized as a toxic air contaminant (TAC). The Office of Environmental Health Hazard Assessment (OEEHHA) has identified carcinogenic and chronic noncarcinogenic effects from long-term exposure, but has not identified health effects due to short-term exposure to diesel exhaust. Because of the temporary nature of Project construction, and because the Project would not generate substantial diesel emission from construction equipment or trucks, the Project would not result in a significant health risk from TACs during construction, and short-term construction-related impacts would be *adverse, but less than significant* (Class III).

Operation

The Project would not involve the use of stationary sources such as generators during operation that are typically associated with TAC emissions, and would not result in substantial TAC or criteria pollutant emissions. Accordingly, the proposed Project would not result in a potential increase in adverse health effects associated with operation of the proposed 146 single family residential units. A health risk assessment (screening or formal) is not required for this Project. Therefore, long-term operational impacts related to potentially exposing sensitive receptors to substantial pollutant concentrations would be *adverse, but less than significant* (Class III).

The health risk public notification thresholds adopted by the SBCAPCD Board specify that the health impacts of a project would not be significant if they do not exceed the thresholds of 10 excess cancer cases in a million for cancer risk and a hazard index of more than 1.0 for non-cancer health effects. The hazard index of more than 1.0 indicates that predicated levels of a toxic pollutant are greater than the reference exposure level, which is considered the level below which adverse health effects are not expected. Examples of projects that emit high levels of toxic pollutants include oil and gas processing, gasoline dispensing, dry cleaning, electronic and parts manufacturing, medical equipment sterilization, freeways, and rail yards (SBCAPCD 2015a). The proposed Project would not emit TACs, and toxic contaminants are not anticipated to be present at the Project site. Therefore, the Project is not anticipated to result in emissions that would exceed the SBCAPCD Board-adopted health risk notification thresholds, and impacts would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts would be less than significant, no mitigation measures are required**.** The residual impact on air quality would be *adverse, but less than significant* (Class III).

Impact AQ-4: ***The Project would not create objectionable odors affecting a substantial number of people.***

1997 Impact Analysis

Odors and nuisances were not required to be addressed by SBCAPCD guidelines in 1997. Therefore, the 1997 OCP EIR did not include an impact statement or analysis relating to odors and nuisances.

2018 Impact Analysis

Although the SBCACPD has not adopted quantitative thresholds of significance for odor impacts, the SBCAPCD recommends the development of an Odor Abatement Plan for projects that may generate nuisance odors that may affect a substantial number of people.

Construction

Potential sources that may emit odors during construction activities include diesel equipment and gasoline fumes and solvents from the applicant of appoint. Odors from these sources would be localized and generally confined to the Project site. The closest sensitive receptor to the Project site is a single-family residence located approximately 50 feet to the north of the Project site. The release of odor-causing compounds would tend to be during the workday, when many residents would not be at home. Furthermore, the SBCAPCD rules restrict ROC content in paints. Such odors are temporary and generally occur at magnitudes that would not affect a substantial number of people. Therefore, construction of the proposed Project would not cause an odor nuisance, and impacts associated with odors during construction would be considered *adverse, but less than significant* (Class III).

Operation

Certain projects have the potential to cause significant odor impacts because of the nature of their operation and their location. Examples include fast food restaurants, bakeries, and coffee roasting facilities (SBCAPCD 2015a). Other projects may be developments (e.g., residential areas or sensitive receptors) that are located downwind of existing sources of odor. The proposed Project would not result in the creation of a new land use that is commonly associated with odors. Therefore, odor impacts associated with operation of the Project would be *adverse, but less than significant* (Class III).

Mitigation and Residual Impact

As impacts would be less than significant, no mitigation measures are required. Potential impacts would be adequately addressed through existing SBCAPCD rules and standard conditions. The residual impact on air quality would be *adverse, but less than significant* (Class III).

3.2.4 Cumulative Impacts

1997 Impact Analysis

The OCP EIR identified cumulative air quality impacts as *significant and unavoidable* (Class I) due to emissions from vehicular and other sources associated with population growth in the Santa Maria Valley at buildout in conjunction with the City of Santa Maria's General Plan and the Santa Maria Public Airport Master Plan, which would result in significant cumulative impacts contributing to the regional air pollution background.

2018 Impact Analysis

As discussed in the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents,* the cumulative contribution of project emissions to regional levels should be compared with existing programs and plans, including the most recent Clean Air Plan (SBCAPCD 2015a). In analyzing cumulative impacts of the proposed Project, the assessment must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the County is designated as nonattainment for the NAAQS or CAAQS. The County is currently in attainment of NAAQS and is in attainment for all CAAQS with the exception of the State 8-hour Ozone standard and the State standards for PM_{10}. Construction and operation of the proposed Project would generate emissions of ROC and NO_x (ozone precursors) and PM_{10} emissions; however, the proposed Project would not exceed SBCAPCD guidance for annual construction emissions or SBCAPCD thresholds for daily operational emissions. Since implementation of the proposed Project would result in less than significant impacts associated with operation of the Project, the Project's contribution to the County's nonattainment status for the State 8-hour Ozone and PM_{10} standards would be less than cumulatively considerable.

Mitigation Measures and Residual Impact

As the Project would not result in significant ozone precursor emissions or PM_{10} emissions, and Project-generated emissions have been considered in the SBCAPCD's 2016 Ozone Plan growth projections, cumulative impacts would be *adverse, but less than significant* (Class III). No additional measures are required. The impact would be considerably less than the project's contribution to cumulative impacts identified in the 1997 OCP EIR.

3.3 BIOLOGICAL RESOURCES

This section describes the biological resources present on the Project site and evaluates potential impacts on biological resources that could be caused by the proposed development. The technical analyses, prepared by Dudek (see References), are included in Appendix B.

3.3.1 Previous CEQA Review

Orcutt Community Plan Discussion

Evaluation of biological resources in the Orcutt Community Plan EIR identified several potentially significant impacts on biological resources as a result of site development including loss of vegetation, habitat fragmentation, and impacts to wildlife.

Orcutt Community Plan Development Standards for biological resources include DevStds BIO-0-1.1, BIO-0-1.2, BIO-0-1.3, BIO-0-1.5, BIO-0-1.8, BIO-0-3.1, BIO-O-4, BIO-O-4.1, BIO-0-5.1, BIO-0-5.2, BIO-0-5.6, and DevStd KS21-4, DevStd KS21-6, DevStd KS21-8.

The OCP identified general OCP impacts to which the residential buildout would contribute (Impact BIO-_) and related, project-specific impacts to Key Site 21 (Impact KS21-BIO-_).

The following *significant, unavoidable impacts* (Class I) on biological resources were identified resulting from OCP buildout:

Impact BIO-11: *The 6-mile trunk line extension would disturb roughly eleven acres of riparian willow forest, scrub and fresh water marsh, and disturb wildlife populations utilizing the riparian corridor and adjacent grasslands and marsh.*

Impact BIO-19: *Site development would contribute to the elimination of/habitat fragmentation of 2,000 acres of habitat within the Orcutt Planning Area*.

Impact BIO-20: *Site development would result in loss and potential degradation of wetlands*.

Impact BIO-23: *Site development would result in loss and potential degradation of grasslands*.

Impact BIO-27: *Site development would result in the loss of central coastal sage scrub.*

Impact BIO-28: *Site development would result in loss and potential degradation of riparian communities.*

Impact BIO-36: *Sewer system policies would result in potential impacts to creeks and wetlands.*

Impact KS21-BIO-2: *Site development would disturb wildlife through disturbance of habitat by domestic animals, disturbance from noise and light sources, and disruption of wildlife migration routes.*

The 1997 OCP FEIR identified the following *significant, but feasibly mitigated impacts* (Class II) that are related to Key Site 21 development:

Impact BIO-8: *Trail construction and use would result in loss of vegetation and disturbance to wildlife.*

Impact BIO-32: *Site development would result in loss and potential degradation of eucalyptus woodlands.*

Impact KS21-BIO-2: *Site development of residential units, hiking trail, and the extension of sewer lines would lead degrade riparian vegetation along the drainage corridors, coastal sage scrub, eucalyptus, and two sensitive plant species through the construction of roads and building sites.*

3.3.2 Relevant Changes

Project Description Changes

The location of the Neighborhoods Specific Plan residential lots is generally consistent with the Key Site 21 development analyzed in the OCP EIR. The proposed 2017 Neighborhoods Specific Plan project description involves the following change that would potentially affect the impacts on biological resources previously identified for Key Site 21.

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than conceptually approved for Key Site 21.
- The Neighborhoods Specific Plan would include three new roadways off of SR 1 to access the project site instead of from SR 1 and the existing golf course access road identified for Key Site 21.
- The proposed Neighborhoods Specific Plan includes 97 acres of undisturbed open space, 72 acres more than conceptually protected in Key Site 21.

Regulatory Setting Changes

While the *County of Santa Barbara Thresholds Manual*, which includes *Biological Resource Guidelines*, has been updated since the 1997 EIR was prepared, no changes have been made to the significance criteria for assessing biological impacts. Additionally, no other changes to the County of Santa Barbara Comprehensive Plan or Land Use and Development Code have occurred since 1997 that affect the analysis of biological impacts. As such, the regulatory setting remains generally the same as the regulatory setting in 1997. As in 1997, biological resource impacts would be considered significant if:

BIO-1 Result in substantial long-term loss of sensitive/native habitat for fish, wildlife, or plants.

BIO-2 Substantially affect protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to: marsh, vernal pool, coastal, etc.) through direct removal, filling,

hydrological interruption or other means.

BIO-3 Substantially affect the population of a state or federally listed, proposed, or candidate species or is expected to affect the breeding or foraging habitat of such a species resulting in substantially increased mortality or reduced reproductive success.

BIO-4 Conflict with local, state, or federal plans and policies protecting sensitive species and habitat resources.

BIO-5 Interfere substantially with the movement of any resident or migratory fish or wildlife species.

Existing Setting

No substantial changes to the Key Site 21 physical setting have occurred since 1997. The Specific Plan area occurs at the base of the northern flanks of the east-west trending Casmalia Hills. The topography varies from flat to gentle south to north slopes that reach 420 feet above sea level along the southern perimeter of the site and descend to 220 in the northwest corner of the property. Three unnamed ephemeral waterways traverse the project site, directing water flow generally from south to north into Orcutt Creek and ultimately into the Santa Maria River.

A variety of native communities are found within and in the immediate area of the Specific Plan area, including coast live oak woodland, purple needle grass grassland, perennial rye grass grassland, coyote brush scrub, California sagebrush scrub, arroyo willow thickets, and cattail marshes. Non-native communities, such as California annual grassland and eucalyptus groves, are also found within the Project site and provide wildlife habitat to a variety of species. Within the project site, non-native California annual grasslands cover the majority of the landscape. Along with natural vegetation, habitat features such as seasonally ponded areas contain key ecosystem components that increase habitat value and complexity for a wide variety of wildlife and plant species. Among these potentially occurring on the project site are federally listed species, such as the California tiger salamander and California red-legged frog, and many other special-status plant and wildlife species.

3.3.3.1 Upland Communities

The Neighborhoods Specific Plan area sensitive biological habitats were resurveyed and mapped as part of studies supporting the Project application (Dudek, 2016a). Detailed analyses of the ecological resources and potential impacts are provided in Appendix B. The vegetation communities and land cover types in the Biological Study Area (Specific Plan area) are summarized in Table 3.3-1 and described further below.

Table 3.3-1 Summary of Existing Vegetation Communities and Wildlife Habitats within the Neighborhoods Specific Plan Area

Physiognomic Category	General Habitat	Vegetation Communities	State Rank/County Status	Total (Acres)
Herbaceous Alliances and Stands	Grassland	California annual grassland	- / -	157.19
		Purple Needle Grass Grassland	S3 / special-status	1.86
		Perennial Rye Grass Grassland	S3 / #	0.73
	Forb Dominated	Bristly Ox-tongue	- / -	0.92
		Cattail Marshes	S5 / #	0.13
			Herbaceous Alliance and Stands	*160.83*
Shrubland Alliances and Stands (Upland)	Coastal Scrub	Coyote Brush Scrub Alliance	S5 / special-status	20.10
		California Sagebrush Scrub Alliance	S5 / special-status	5.91
			Shrubland Alliances and Stands (Upland) Total	*26.01*
Shrubland Alliances and Stands (Wetland)	Riparian Scrub	Arroyo Willow Thickets	S4 / special-status	3.79
			Shrubland Alliances and Stands (Wetland) Total	*3.79*
Tree Alliances and Stands	Woodlands	Eucalyptus Grove	- / -	5.08
		Coast Live Oak Woodland- Arroyo Willow Thickets	S4 / special-status	15.17
		Coast Live Oak Woodland	S4 / special-status	10.03
			Tree Alliances and Stands Total	*30.28*
Non-Vegetated Habitats		Developed	- / -	112.72
		Debris	- / -	0.74
			Non-Vegetated Habitats Total	*113.46*
			Grand Total	**334.37***

Notes:
State Rank – the alliance's rarity and threat in California.
S3: 21-100 viable occurrences statewide, and more than 2,590-12,950 hectares
S4: Greater than 100 viable occurrences statewide, and/or more than 12,950 hectares
S5: Demonstrably secure because of its statewide abundance
*: Acreages are based on GIS calculations, which vary slightly from the Key Site 21 acreage included in the OCP.

Coast Live Oak Woodland

This vegetation community is dominated by coast live oak and arroyo willow, and also includes sparse to intermittent cover of Pacific poison oak and coyote brush. Coast live woodland habitat occur in several linear patches in the south and central portions of Key Site 21 on the edges of ephemeral waterways. Coast live oak woodland alliance vegetation comprise 10.03 acres, or 4.5 percent, of the vegetation cover on the site while coast live oak woodland-arroyo willow thickets association vegetation comprises 15.17 acres, or 6.8 percent, of the vegetation cover within the Specific Plan area. Both habitats are located outside of the proposed building envelope for Willow

Creek and Hidden Canyon.

Individual protected oak trees are considered to be coast live oak trees six inches or greater in DBH and blue oak trees four inches or greater DBH, or coast live oak and blue oaks six feet or greater in height (County of Santa Barbara 2009).

Eucalyptus Groves

This vegetation habitat contains non-native Tasmanian blue gum *(Eucalyptus globulus*) as the dominant species. Eucalyptus groves have an intermittent to continuous canopy less than 50 meters (164 feet) in height with a sparse to intermittent shrub and herbaceous layer. Eucalyptus groves occur in three patches in the central portion of the Project site. Two of these stands are located within the canyon bottoms associated with the ephemeral waterways (see Dudek 2016). The eucalyptus grove vegetation comprises 5.08 acres, or 2.3 percent of the vegetation cover in the Specific Plan area. Eucalyptus groves are commonly used by several raptors as nesting and/or perching habitat. One raptor nest was identified within a eucalyptus grove in the central portion of the Project site.

Protected non-native trees are those with a DBH of 25 inches or greater (County of Santa Barbara 2009).

Native Grasslands

Two native grassland types exist on the proposed Project site: purple needle grass grassland and creeping rye grass turf/perennial rye grass grassland. Purple needle grass grassland occurs in patches, with the largest patches occurring in the central-western and southeast portion of the Project site. These patches comprise a total of 1.86 acres, or approximately 1.0 percent, of the vegetation cover in the Specific Plan area. One patch of perennial rye grass grassland occurs in the central-western portion of the Project site surrounded by annual brome grasslands and coyote brush scrub. This one patch is located within an area designated as significant habitat by the OCP and comprises 0.73 acre, or 0.3 percent, of the vegetation cover in the Specific Plan area.

California Annual Grasslands

Vegetation in this habitat is composed primarily of non-native annual grasses, such as bromes *(Bromus sp.)*, and non-native and native annual forbs such as California poppy *(Eschscholzia californica),* filaree *(Erodium sp.),* lupine *(Lupinus sp.),* mustards *(Brassica sp.),* and oat *(Avena sp.).* Noxious weeds are also present in disturbed areas adjacent to this habitat type. California annual grassland is the dominant vegetation community on-site, compromising 157.19 acres, or 71.1 percent, of the vegetation cover in the Project area. Wildlife species use this habitat for a variety of purposes. For example, raptors such as red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus),* turkey vultures (*Cathartes aura*) use this habitat for foraging. In addition, in areas where California annual grassland borders creeks, wetlands, and seasonal pools, amphibians including federally-protected California tiger salamander and California red-legged frog may be seasonally evident.

Coastal Scrub

California sagebrush scrub and coyote brush scrub are the two alliances in this general habitat type present on the Specific Plan area. California sagebrush scrub comprises approximately 5.91 acres, or 2.7 percent, of the vegetation cover while Coyote brush scrub comprises approximately 20.1 acres, or 9.1 percent, of the vegetation cover in the Specific Plan area. California sagebrush scrub is found in three stands in the southern portion of the Project site. These stands are located on the upper slopes of the canyon features associated with the ephemeral waterways that traverse from southeast to northwest. It has a continuous or intermittent shrub canopy of less than 2 meters (7 feet) in height with a variable ground layer. Coyote brush scrub occurs along riparian habitats and within three areas in the western portion of the Specific Plan area. Some of the larger stands are fairly dense, with a sparse cover of herbaceous species present. Coyote brush scrub has a variable shrub canopy less than 3 meters (10 feet) in height with a variable ground layer.

3.3.3.2 Wetland Communities

The wetland delineation assessment (Dudek 2017a) identified two main hydrologic features: a wetland feature in the northeastern portion of Hidden Canyon and an unnamed tributary to Orcutt Creek in the central portion of the site, immediately east of Willow Creek. Potential wetland features were analyzed for the presence or absence of hydrophytic vegetation, hydric soils, and hydrology.

The portion of the Hidden Canyon wetland feature is characterized as PFOA- (P) palustrine, (FO) forested, (A) temporarily flooded. Immediately downstream of this feature, is a channel feature described as PEM1Cx- (P) palustrine, (EM) emergent, (1) persistent, (C) seasonally flooded, (x) excavated (USFWS 2017). Although a significant portion of this feature was disturbed by prior agricultural operations, the vegetation that has established is largely compromised of hydrophytic vegetation. Mature stands of arroyo willow thickets are present around the periphery of the wetland feature and are riparian scrub habitats used by wildlife for a variety of purposes. Other vegetation habitats within the wetland delineation include cattail marshes, bristly ox tongue, and California annual grasslands (Dudek 2017a).

The features present within Willow Creek were found to be largely absent of hydrophytic vegetation, with the exception of small patches of poison hemlock adjacent to the defined swale upslope of the rye grassland vegetation. The unnamed tributary east of Willow Creek is characterized an ephemeral system due to the presumed reliance on rainfall to create and sustain flows. Shortly following cessation of rainfall, this system dries out and pools, if present, would be expected to persist for only a short duration. Vegetation within the portion of the unnamed tributary has been heavily disturbed by golf course construction and on-going operations, and overall, is largely devoid of vegetation.

One hydrologic feature occurs along the proposed sewer line easement north of SR 1. The unnamed tributary to Orcutt Creek meanders and a portion of it is within the project site. The northern portion of it would cross part of the wetland within the proposed site and the hydrologic vegetation is dominated by arroyo willow thickets.

3.3.3.3 Special-Status Species

Sensitive-status species are those that are designed as either rate, threatened, or endangered (or candidate) by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) or are included on the California Rare Plant Ranking (CRPR) of 1, 2, or 4 in the California Native Plant Society (CNPS) inventory.

The following are special-status plant and wildlife species known to be present in the Specific Plan area:

Blochman's Dudleya

Blochman's Dudleya is a perennial herb found in coastal scrub, chaparral, valley and foothill grassland/rocky. Blochman's Dudleya was the only special-status plant species found within the Specific Plan area during the 2016 floristic surveys. It has a CRPR ranking of 1B-1, which means it is threatened in California and elsewhere. Blochman's Dudleya is found in the southwestern portion of the Specific Plan area in an area proposed as dedicated natural open space, therefore outside of the neighborhoods building envelope.

California Tiger Salamander

The California tiger salamander *(Ambystoma californiense)* (CTS) is a large, stocky amphibian that spends much of its life underground in small mammal burrows and requires seasonal, or semi-permanent wetlands to reproduce (Bolster 2010). CTS is a federal-listed endangered and state-listed threatened species. Key Site 21 is located within the potential distribution of CTS mapped in Santa Barbara County (USFWS 2015a). Prior surveys conducted on the Golf Course property found the species throughout the northern portion of Key Site 21 (LFR 2004).

Although surveys completed by Dudek in 2015-2016 did not find any CTS, results from the survey indicate that the Project site remains suitable for the CTS. Potential breeding ponds are located within and immediately adjacent to the Project site, and the available upland habitat is suitable for movement and dispersal. Presence of these habitat features, along with the previous observations of the species during focused surveys, show that the species is likely present within the project site.

California Red-Legged Frog

California red-legged frogs *(Rana draytonii)* (CRLF) are federally listed as threatened. CRLF occurs widely at suitable elevations in Santa Barbara County. The same 2004 survey mention in the CTS discussion, observed CRLF individuals at a man-made pond immediately west of the Rancho Maria Golf Course clubhouse, which is situated outside of the project site boundary (LFR 2004).

Similarly, surveys completed by Dudek in 2015-2016 did not spot any CRLF but indicate that the available habitat is largely unchanged from the previous survey and provides suitable movement habitat for CRLF, which means that they are likely to remain present within and adjacent to the Project site.

Monarch Butterfly

There are no known monarch butterfly over-wintering sites in the Orcutt area; however, the eucalyptus trees in the Rancho Maria Golf Course are known autumnal roosting site for this species (Santa Barbara County 2009). Species-specific surveys were not conducted, and monarch butterfly were not observed roosting on the project site during prior surveys or during the surveys completed by Dudek in 2015-2016; however, eucalyptus groves presence indicate suitable habitat for this species protected by County of Santa Barbara policies.

The following are other special-status species that have moderate potential to occur within the Specific Plan area based on the presence of suitable habitat and connectivity to adjacent open space supporting similar natural habitat. These species have not been documented within the Specific Plan area in past or recent surveys.

Mammals

- Townsend's big-eared bat
- Western red bat
- Pallid bat
- American badger
- San Diego desert woodrat

Reptiles and Amphibians

- Western spadefoot
- Western pond turtle
- Silvery legless lizard
- Blainvile's horned lizard
- Coast patched-nose snake
- Two-striped garter snake

Aquatic Invertebrates

- Vernal pool fairy shrimp

Birds

- Red-tailed hawk
- White-tailed kite
- Northern harrier
- Golden eagle
- Cooper's hawk
- Red-shouldered hawk
- Turkey vulture
- Great horned owl
- American kestrel
- Burrowing owl
- Yellow warbler

3.3.4 Impacts

Potential impacts on biological resources are discussed below. Table 3.3-2 summarizes the impacts on existing biological communities within the Specific Plan area.

Table 3.3-2. Summary of Specific Plan Impacts to Existing Vegetation Communities

Physiognomic Category	General Habitat	Vegetation Communities	Total Acres Existing in Key Site 21	Total Permanent Impacts (Acres)
Herbaceous Alliances and Stands	Grassland	California annual grassland	157.19	79.15*
		Purple Needle Grass Grassland[1]	1.86	1.50
		Perennial Rye Grass Fields[1]	0.73	0.73
	Forb Dominated	Bristly Ox-tongue[2]	0.92	0.67
		Cattail Marshes[1,2]	0.13	0.12
		Herbaceous Alliance and Stands Total	*160.83*	*82.17*
Shrubland Alliances and Stands (Upland)	Coastal Scrub	Coyote Brush Scrub Alliance[1]	20.10	2.17
		California Sagebrush Scrub Alliance[2]	5.91	0.18
		Shrubland Alliances and Stands (Upland) Total	*26.01*	2.35
Shrubland Alliances and Stands (Wetland)	Riparian Scrub	Arroyo Willow Thickets[1,2]	3.79	1.99
		Shrubland Alliances and Stands (Wetland) Total	*3.79*	1.99
Tree Alliances and Stands	Woodlands	Eucalyptus Grove[3]	5.08	0.49
		Coast Live Oak Woodland- Arroyo Willow Thickets[1]	15.17	--
		Coast Live Oak Woodland[1]	10.03	--
		Tree Alliances and Stands Total	*30.28*	0.49
Non-Vegetated Habitats		Developed	112.72	5.20
		Debris	0.74	--
		Non-Vegetated Habitats Total	*113.46*	5.20
		Grand Total	**334.37**	92.20

Notes:
[1] Sensitive vegetation community; [2] Located in a potential wetland ; [3] Impact mitigated when known over-wintering habitat for the monarch butterfly
*: Impacts to California annual grassland were determined to exceed calculated acreage based on aerial photo interpretation.

Impact BIO-1.1: Site development would not result in a substantial loss of oak woodland.

<u>1997 Impact Analysis</u>

OCP Buildout impacts associated with removal of oak woodland is identified in Impact BIO-31 in the OCP EIR. However, the OCP did not identify oak woodland as being part of the biological setting of Key Site 21, therefore no site-specific impact related to loss of oak woodland was identified.

<u>2018 Impact Analysis</u>

Although there are coastal oak woodland habitats present within Key Site 21, all of these communities are outside the proposed Neighborhoods residential development area. There would be no impact associated with loss of oak woodland. However, two protected coast live oak trees

would be removed (Dudek 2017b). This would be a *significant impact* on biological resources.

Mitigation Measures and Residual Impacts

BIO-1.1 The applicant shall plant coast live oaks (*Quercus agrifolia*) at a 10:1 (replacement to removal ratio) with a minimum 1-gallon size specimen to replace removal of oak and non-native protected trees from the project site. Planting locations shall be incorporated into the Open Space Management Plan.

Implementation of this measure would reduce impacts on biological resources to *significant, but feasibly mitigated* (Class II). Impacts would be similar to those of the OCP FEIR.

Impact BIO-1.2: Site development would result in substantial, long-term loss of native grasslands, a native habitat for wildlife and plants.

1997 Impact Analysis

Community-wide impacts on grasslands are identified in Impact BIO-23 in the OCP EIR. OCP Buildout would result in the elimination of approximately 900 acres of grassland (native and non-native) in the OPA, which would create substantial impacts through the loss of habitat for eight bird California species of special concern. This community-wide impact was determined to be *significant and unavoidable* (Class I) and buildout of Key Site 21 was determined to contribute to this impact.

Mitigation Measures and Residual Impact

No mitigation measures were identified that would feasibly mitigate the impact on grasslands to less than significant. This general and site-specific impact is *significant and unavoidable* (Class I).

2018 Impact Analysis

Conversion of open space to residential development would substantially reduce the abundance of two native grassland types existing on the proposed Project site: purple needle grassland and perennial rye grass fields. Development would permanently impact 1.50 acres representing 81% of purple needle grassland existing on-site, with most of the impacts occurring within the Willow Creek neighborhood. Development of Willow Creek would permanently impact all 0.73 acres of perennial rye grass fields existing on-site. The existing perennial rye grass field that would be impacted by development is situated in OCP designated sensitive habitat. These impacts associated with buildout of the proposed Specific Plan would be *significant.* However, they would be equivalent to those identified in the OCP EIR.

Mitigation Measures and Residual Impact

The County of Santa Barbara Thresholds of Significance (2008) provides the following project design mitigation for native grasslands:

1) *Design the project so that continuous habitat areas are preserved to the greatest extent feasible; or*

2) *Incorporation of restoration and enhancement measures, including weeding, intentional burning, revegetation (planting of seeds or plugs), or other procedures will facilitate natural regeneration of the grassland.*

The Open Space Management Plan (OSMP) (Dudek 2017b) has been prepared to address project impacts on sensitive vegetation communities such as native purple needle grasses. The following measure would mitigate impacts to the purple needle grassland consistent with County Thresholds of Significance direction:

BIO-1.2.1: The applicant shall include on-site restoration of native grasslands within the preserved open space. Opportunities for purple needle grassland are available within land currently characterized as California annual grassland; however, specific mitigation locations shall be selected based on soils, topography, and slope.

The OSMP and mitigation measures would compensate the permanent impact the proposed project would have on native purple needle grasslands, as they can be feasibly restored on proposed open space areas. The Project's impact on this habitat would be reduced to *significant, but feasibly mitigated* (Class II).

The permanent impact to all the 0.73 acres of perennial rye grass fields within the Project area would not be feasibly mitigated, as their ecological requirements including topography, soils, hydrology, and full sun exposure are not considered available within the proposed Open Space areas. Therefore, the residual permanent Project impact on perennial rye grass fields would be *significant and unavoidable* (Class I).

Project impacts on native grasslands would be less than that identified in the OCP EIR, as impacts to purple needle grassland would be feasibly mitigated onsite.

Impact BIO-1.3: Site development would result in the substantial, long-term loss of coastal scrub, a native upland habitat for wildlife and plants.

1997 Impact Analysis

OCP EIR Impact BIO-27 states that OCP Buildout would result in the elimination of approximately 150 acres of central coastal sage scrub in the OPA, which would create substantial impacts on this declining community and the uncommon Lompoc monkey flower. This community-wide impact was determined to be *significant and unavoidable* (Class I) and buildout of Key Site 21 was determined to contribute to this impact.

The following mitigation was identified in the OCP FEIR Key Site 21 analysis:

KS21-BIO-1: The Open Space Overlay shall be applied to the area extending along the two drainage corridors. No development except hiking trails or roadways to the existing

parking lot shall be permitted within this overlay and no structures shall be permitted within 50-feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.

2018 Impact Analysis

Residential development would result in permanent impacts to 2.17 acres of coyote brush scrub and 0.18 acre of coastal sage scrub, representing 11% and 3% of the respective habitats on-site. This impact would be *potentially significant*.

Mitigation Measures and Residual Impact

The proposed Open Space Management Plan (Dudek 2017b) includes the preservation of both major drainage corridors and associated riparian vegetation as part of the 96.7 acres of private undisturbed open space within the two neighborhoods. All Willow Creek Neighborhood residential lots would be developed over 250 feet away from the Key Site 21 Open Space Overlay designated on Figure KS-21-1. The proposed Hidden Creek Neighborhood Lots 50, 51, and 52 are located outside of the Key Site 21 Open Space Overlay. The proposed Specific Plan would be consistent with OCP FEIR Mitigation Measure KS21-BIO-1.

The following measures are recommended in the OSMP (Dudek 2017b) to mitigate impacts to coastal scrub.

BIO-1.3.1: The applicant shall include on-site restoration of coastal scrub within the preserved open space. Opportunities for coastal scrub are available within land currently characterized as California annual grassland; however, specific mitigation locations shall be selected based on soils, topography, and slope.

BIO-1.3.2: Prior to the initiation of any state disturbance and/or construction activities, all personnel shall attend worker education training program conducted by a qualified biologist.

The mitigation measures would compensate the loss of native coastal scrub on-site and minimize disturbance during construction. The residual impact would be *significant* but feasibly mitigated (Class II), and would be less than that identified in the OCP EIR.

Impact BIO-1.4: Site development would result in the long-term loss of non-native grassland habitat.

1997 Impact Analysis

As mentioned in Impact BIO-1.2, OCP buildout would result in loss of 900 acres of combined native and non-native grasslands. The loss of native grasslands was considered a *significant and unavoidable* impact (Class I). The loss of non-native grassland was not characterized as an impact.

2018 Impact Analysis

Residential development would result in permanent impacts to 79.19 of the 157.19 acres of non-native grassland, representing 50 percent of the respective habitats on-site. Although the loss of 50 percent of non-native grassland is substantial, the botanic value of non-native grasses and common herbaceous species is considered low. Therefore, the permanent loss of the non-native grassland on the Project site would be an *adverse, but less than significant impact* (Class III).

Mitigation Measures and Residual Impact

As impacts on biological resources would be less than significant, no mitigation is required. The residual impact would be *adverse, but less than significant* (Class III).

Impact BIO-1.5: Site development would result in the long-term loss of non-native raptor nesting habitat.

1997 Impact Analysis

As stated in OCP EIR Impact BIO-32, removal of eucalyptus woodlands from Plan buildout that would be used as roosting and/or nesting sites for songbirds and raptors was identified as *significant but feasible mitigated* (Class II).

Mitigation Measures and Residual Impact

The follow mitigation measure was identified to mitigate impacts on non-native trees:

BIO-1.4.1: Eucalyptus woodlands that are used as roosting and/or nesting sites for raptors or perching sites for song birds shall be protected to the maximum extent feasible. Where eucalyptus trees are removed, they shall be replaced by native trees.

Although the impact on non-native grasslands would remain significant, the residual impact on non-native trees such as eucalyptus woodlands was characterized as *significant, but feasibly mitigated* (Class II).

2018 Impact Analysis

Residential development would result in permanent impacts to 0.49 of the 5.08 acres of non-native eucalyptus woodland, representing 9.6 percent of the habitat on-site. The permanent loss of the non-native habitat on the Project site would be *potentially significant*. Protected non-native trees that would be removed include six eucalyptus and six Monterey Pine trees (Dudek 2017c).

Mitigation and Residual Impact

Implementation of OCP EIR mitigation BIO-1.4.1 would apply to this impact.

BIO-1.5: The loss of 0.49 acres of eucalyptus woodlands and Monterey pine trees potentially used as roosting and/or nesting sites for raptors or perching sites for song birds

shall be mitigated onsite on a 1:1 basis with native trees.

The residual impact on biological resources would be *significant, but feasibly mitigated* (Class II).

Impact BIO-2: Site development would result in loss and potential degradation of wetland and riparian habitat.

1997 Impact Analysis

Community Plan-wide impacts associated with the elimination and degradation of wetlands and riparian habitat are identified in the Impacts BIO-20, 22, and 28 in the OCP EIR. OCP Buildout would result in the loss of 200 acres of wetland and upland habitat and 150 acres of riparian communities. Identified as having freshwater marsh and associated riparian habitat, buildout of Key Site 21 would contribute to this impact. The impact on biological resources was considered *potentially significant but feasibly mitigated* (Class II).

Mitigation Measures and Residual Impact

In addition to mitigation measure KS21-BIO-1, the following measure was identified in the OCP EIR to mitigate impacts on wetlands and riparian habitats.

KS21-BIO-2 No sewer lines shall be located within 50 feet of the dripline of riparian vegetation along the drainages, except in locations where the line must cross the creek.

2018 Impact Analysis

Implementation of the proposed project, including an approximately 1,000 feet connection to a 24-inch sewer main sewer line north of Key Site 21 and SR 1 on OCP Key Site 22, would result in permanent impacts to 2.20 acres of wetland and non-wetland waters of the U.S. and state, 1.55 acres of riparian vegetation, and 0.14 acre of County regulated two-parameter wetland (Dudek 2017a). In addition, implementation of the proposed project would result in temporary impacts to 0.08 acre of wetland waters of the U.S. and state, and an additional 0.02 acre of riparian vegetation. The impacts are summarized in Table 3.3-2, below.

The potential impacts would occur on the two main hydrologic features identified in the Project site: a wetland feature in the northeastern portion of Hidden Canyon and an unnamed tributary to Orcutt Creek in the central portion of the project site, immediately east of Willow Creek. Impacts on wetlands and riparian habitat would impact three vegetation communities: arroyo willow thickets, cattail marshes, and bristly ox-tongue. The permanent and temporary loss of wetland and riparian habitat resulting from Specific Plan buildout would be *potentially significant*.

Mitigation Measures and Residual Impact

In addition to mitigation measures and development standards mentioned in the OCP EIR for Key Site 21, the Neighborhoods Specific Plan proposes the following mitigation measures to compensate for permanent impacts to jurisdictional waters and wetlands, in addition to submittal of appropriate

permits to jurisdictional agencies. Proposed mitigation ratios are identified in Table 3.3-2. (Dudek 2017a).

Table 3.3-2. Impacts to Jurisdictional Wetland Resources and Associated Mitigation

Permanent Impact Areas Willow Creek and Hidden Canyon				
Agency Jurisdiction	**Feature Type**	**Permanent Impact (Acres)**	**Mitigation Ratio**	**Total Mitigation (Acres)**
USACE/ RWQCB/ CDFW/ County	Non-Wetland Waters of the U.S./ State	0.026	1:1	0.026
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	2.10	1:1	2.10
RWQCB/ CDFW/ County	Waters of the State	0.077	1:1	0.077
CDFW	Top of Bank or Edge of Riparian Habitat	1.55	2:1	3.10
County	Two Parameter Wetland	0.14	1:1	0.14
Temporary Impact Areas Sewer line Easement				
USACE/ RWQCB/ CDFW/ County	Wetland Waters of the U.S.	0.08	1:1	0.08
CDFW	Top of Bank or Edge of Riparian Habitat	0.02	1:1	0.02
TOTAL Mitigation for Impacts to USACE/ RWQCB/ CDFW/ County Jurisdiction (Acres)				**5.54**

BIO-2.2: Mitigation for impacts to USACE, RWQCB, CDFW, and County jurisdictional waters and streambed shall be accomplished either on-site, off-site, or via an off-site in-lieu fee program within the Santa Maria River watershed, potentially through the Santa Barbara Land Trust. All on-site mitigation shall be installed during and immediately following project construction. Monitoring of the mitigation shall take place during installation as well as for 5 years following project completion. Appropriate mitigation ratios shall be applied to the impacts to result in no net loss of jurisdictional streambed.

- A 1:1 mitigation ratio is proposed to compensate for permanent impacts to USACE, RWQCB, CDFW, and County jurisdictional wetlands.
- A 2:1 mitigation ratio is proposed to compensate for permanent impacts to CDFW and County jurisdictional riparian habitat.
- A 1:1 mitigation ratio is proposed to compensate for temporary impacts to USACE, RWQCB, CDFW, and County jurisdictional waters/ riparian vegetation.

BIO-2.3 All new development adjacent to creeks and streams shall be required to implement a riparian habitat restoration plan. The project shall minimize the effects of adjacent urbanization by: 1) locating the restoration onsite to the maximum extent feasible, 2) hooding and directing all lights away from the creek, 3) providing a long-term drainage plan that directs any potentially polluted drainage away from the creek, and 4) implementing an erosion and sedimentation control plan during construction.

All riparian vegetation along drainages within the Specific Plan area are within proposed undisturbed open space, such that no sewer line encroachment would occur within 50 feet of driplines. The only wetland impacted by a sewer lateral would be within a recorded easement connecting to a 24-inch sewer main approximately 1,000 to the north of the Project site, on Key Site 22. The impact would be mitigated according to applicable responsible agency guidelines. Implementation of measures BIO-2.1 through 2.4 would reduce impacts on biological resources to *significant, but feasibly mitigated* (Class II). Impacts would be equivalent to those identified in the OCP FEIR.

Impact BIO-3.1: Site development would not result in the loss of local populations of special-status plant species.

1997 Impact Analysis

The OCP EIR identified two sensitive plant species, Shagbark manzanita and Lompoc Yerba Santa, that may exist on Key Site 21. Although the impact on these two species was not specifically identified, mitigation measures mentioned in the above impacts, such as Open Space Overlay, were determined to mitigate impacts to loss of habitat and riparian vegetation. The direct impact on special-status plant species was not clear, but the overall impact on habitat in which it is reasonable to assume these species reside, was identified as *potentially significant but feasibly mitigated* (Class II).

2018 Impact Analysis

Dudek (2016a) analysis identified 21 special-status plant species that had the potential to occur within the project site. Of these, only one special-status plant species was observed on the project site, on has moderate potential to occur, and 19 have low potential to occur. Lompoc Yerba Santa was not observed during the 2016 floristic survey nor is it expected to occur on the Project site as there is no suitable habitat present. Shagbark manzanita, also referred to as sand mesa manzanita, was also not observed during survey and was determined to have low potential occur, with suitable habitat present onsite within the coastal scrub. The nearest occurrences of both species were miles away from the project site, according to CDFW (2016a).

The only special-species plant located on Key Site 21 is Blochman's Dudleya. However, this species is found outside the proposed development area. No impacts to special-status plant species is anticipated to result from buildout of Key Site 21.

Mitigation Measures and Residual Impact

As no significant impacts on biological resources would occur, no mitigation is required. The residual impact on biological resources would be *adverse, but less than significant* (Class III), and less than identified in the OCP FEIR.

Impact BIO-3.2a: Site development would result in substantial loss of special-status wildlife species.

1997 Impact Analysis

The OCP EIR determined that loss of grasslands, wetlands, and riparian habitat would result in substantial impacts to wildlife that rely on these habitats for shelter, nesting, and/or foraging. Residential development on Key Site 21 would substantial contribute to impacts on special-status wildlife not only by contributing to the elimination and degradation of habitat, but also by introducing domestic animals, noise and light sources, and physical barriers to wildlife migration routes. Additionally, although not an impact specifically identified in the Key Site 21 impact discussion, OCP buildout was found to result in elimination of candidate species for the endangered species list—spadefoot toad, California tiger salamander, and southwestern pond turtle—by reducing the little habitat remaining for these species. Buildout would also impact many other California special status wildlife that have potential to be present or visit the project site, such as various species of raptor birds. The impact to special-status wildlife species was determined to be s*ignificant.*

Mitigation and Residual Impacts

The following mitigation measures were identified for the three federal candidates for the endangered species list:

BIO 3.2a-1: Incorporate wetland/upland complex in Open Space Overlay. Preserve contiguous wetland/upland habitat. Require buffer, fencing, and restoration of wetland/upland habitat.

BIO 3.2a-2: Realign roads and sewer lines, and site new sewage plant and retention basins to avoid wetlands.

BIO 3.2a-3: Adopt Open Space Overlay and Open Space Plan and form Landscape-Open Space Maintenance District.

Despite mitigation measures, impacts on wildlife was determined to be *significant and unavoidable* (Class I).

2018 Impact Analysis

Biological surveys were conducted on the project site in 2015-2016 to document the presence or potential presence of special-status wildlife species known to occur on or in the vicinity of the project site. Two species are known to occur within the Specific Plan area and have the potential to be impacted by development on-site: California tiger salamander and California red-legged frog.

Additional wildlife species that have potential to occupy the site as resident, nesting, or wintering species based on the presence of suitable habitat are discussed as well.

California Tiger Salamander (CTS)

Prior surveys (LFR 2004) found this species in the northern portion of Key Site 21, and based on similar habitat features, it is reasonable to assume the CTS is still present within the site. Potential breeding ponds present on-site are located outside of the proposed development area thus would not be impacted by the buildout of the proposed Project. However, proposed Project would impact upland habitat supporting small mammal burrows which provide cover for CTS during migration and dispersal as well as potentially for aestivation habitat.

California Red-Legged Frog

Wetlands which are known to support CRLF are located within the Rancho Maria Golf Course property, immediately adjacent to the project site (LFR 2004). The man-made pond identified to support CRLF in 2004 is situated outside of the project site boundary and thus would not be impacted by the proposed Project; however, the project site provides suitable movement habitat for this species and it is reasonable to assume the species may be present onsite. As is the case with the CTS, consultations and permits with USFWS and CDFW would be necessary before initiation to the project to assure maximum projection to the species.

Monarch Butterfly

Eucalyptus trees are known to be typical autumnal roosting habitat for monarch butterflies. The Project site provides suitable roosting habitat in the form of a large mixed eucalyptus windbreaks in the central, central-northern, and central-eastern portions of the site. The project would permanently impact approximately 0.49 acre of eucalyptus stands on the site. Due to the small overall impact area to eucalyptus stands, the impact would be considered minimal to monarch butterflies and therefore less than significant.

Other Special-Status Wildlife Species

These species discussed below have some potential to occur within the project area, based on the presence of suitable habitat and connectivity to adjacent open space supporting similar natural habitat. Suitable habitat for these species largely occurs outside of the project impact area. No individual special-status mammal species were identified during the 2015-2016 field surveys (Dudek 2016).

- Vernal pool fairy shrimp: The Project site includes the proposed removal of aquatic habitat suitable for vernal pool fairy shrimp. Their presence in the Specific Plan area is unknown.

- Several special-status species of reptiles including western spadefoot (*Spea hammondii*), western pond turtle (*Actinemys marmorata*), silvery legless lizard (*Anniella pulchra pulchra*), Blainville's horned lizard (*Phrynosoma blainvillii*), coast patched-nose snake (*Salvadora hexalepis virgultea*), and two-striped garter snake (*Thamnophis hammondii*): Suitable

habitat for these species is largely within the open space portion of the Specific Plan area and may occur on-site. None of these were identified during the 2016 field survey (Dudek 2016).

- Mammals including western red bat (*Lasiurus blossevillii*), American badger (*Taxidea taxus*), and San Diego desert woodrat (*Neotoma lepida intermedia*). Though no individuals were identified during onsite biological surveys (Dudek 2016), the Project site includes the proposed removal of habitat suitable for special status mammal such as these and direct impacts to special-status mammals may occur as a result of ground disturbing activities..

- Bat species such as Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat (*Antrozous pallidus*): The proposed Project could result in the potential loss or degradation of bat roosting habitat. The Project includes the proposed removal of existing trees around the periphery of the Rancho Maria Golf Course, which could potentially be utilized by several bat species as roosting habitat.

These impacts on biological resources would be *potentially significant*.

Mitigation Measures and Residual Impact

The following mitigation measures would be required for the special-status wildlife species:

BIO-3-1.1 USFWS and CDFW consultations and development of resulting mitigation measures shall be conducted at least one-year prior to expected initiation of Project activities and permit requests to ensure that all potential impacts to CTS and CRLF are avoided.

BIO-3-1.2 Removal of eucalyptus stands shall occur outside of the Monarch butterfly autumnal and over-wintering season. Eucalyptus tree impacts shall occur in the late summer after the end of the bird breeding season and prior to the start of the Monarch autumnal season, between August 16 and November 1.

BIO-3-1.3 A focused protocol branchiopod survey shall occur within the Project site impact footprint within areas suitable for vernal pool fairy shrimp and consultation with the USFWS conducted as necessary.

BIO-3-1.4. A preconstruction survey for non-listed reptile and amphibian species shall be conducted within 30 days of the commencement of ground disturbances. Any individuals discovered during the preconstruction survey shall be captured and relocated outside of the Project impact area. Listed reptile and amphibian species discovered during the preconstruction survey shall be reported to the CDFW and USFWS for consultation and development of feasible mitigation.

BIO-3-1.5. A preconstruction survey for special-status mammals shall be conducted within 30 days of ground disturbance. If special-status mammals are present, appropriate avoidance measures shall be developed including relocation outside of proposed disturbance areas to ensure that no impacts to special-status mammals occur.

BIO-3-1.6. A preconstruction survey for roosting bats shall be conducted within 30 days of disturbance to existing trees. If roosting bats are present, appropriate avoidance measures shall be developed to ensure that no impacts to roosting bats occur.

Implementation of these measures would reduce impacts to biological resources to *significant, but feasibly mitigated* (Class II), similar to OCP Buildout.

Impact BIO-3.2b: Site development would result in the loss of sensitive and common bird species nesting habitat.

1997 Impact Analysis

The OCP did not analyze the specific impacts on nesting habitat. However, it did determine that loss of 830 acres of grassland would eliminate habitat for eight California sensitive bird species including white-tailed kite, golden eagle, northern harrier, Cooper's hawk, California horned lark, loggerhead shrike, badger and burrowing owl. The impact on this habitat was determined to be *significant and unavoidable* (Class I). Removal of non-native eucalyptus trees that are used for perching and roosting and/or nesting site for songbirds and raptors could have a substantial impact on raptor populations. This impact was *significant but feasible mitigated* (Class II).

Mitigation Measures and Residual Impact

BIO-3.2b-1 Eucalyptus woodlands that are used as roosting and/or nesting sites for raptors or perching sites for song birds shall be protected to the maximum extent feasible. Where eucalyptus trees are removed, they shall be replaced by native trees.

BIO-3.2b-2 The initial disturbance and tree removal in open grassland, riparian areas, woodland, coastal scrub, and adjacent to the localized eucalyptus tree stand shall avoid the bird breeding season (March 1 to August 15). If initial construction activities are proposed during this period, pre-construction nesting bird surveys of the Site shall be conducted two weeks prior to the start of ground clearing or grading activity. On-going construction activities that involve disturbances within 500-feet of an active nest shall be avoided.

Implementation of these measures would reduce biological resource impacts to *potentially significant, but feasibly mitigated* (Class II).

2018 Impact Analysis

The project could result in the mortality, injury, or loss of nests, eggs, or nestlings for several bird species. During 2015-2016 field surveys (Dudek 2016) within the Specific Plan area, nine raptor nests were identified. As currently designed, the Project would remove one raptor nest in the northeastern portion of the Project site. Raptor nesting surveys completed in 2016 found no active raptor nests within the Specific Plan area; however, several raptor species were identified including red-tailed hawk, white-tailed kite, northern harrier, golden eagle, Cooper's hawk, red-shouldered hawk, turkey vulture, great horned owl, and American kestrel. No raptor species were identified to

be nesting within the project site and no breeding behavior (e.g. transporting nesting material or prey items) was observed. Additional common and special-status birds would also use trees within the Specific Plan area for nesting.

Mitigation Measures and Residual Impact

The following measure would be required.

BIO-3.2b-3 In compliance with the Migratory Bird Treaty Act and the California Fish and Game Code, a preconstruction survey for nesting birds shall be conducted within 30 days of ground disturbance activities associated with construction or grading that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February 1 through August 15). The applicant shall have weekly surveys conducted between 8:00 am and 12:00 pm by a qualified biologist (e.g., experienced with the nesting behavior of bird species of the region). The intent of the surveys shall be to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the construction zone or within 300 feet (500 feet for raptors) of the construction zone. The surveys shall be timed such that the last survey is concluded no more than one week prior to initiation of clearance/construction work. If ground disturbance activities are delayed, then additional pre-construction surveys shall be conducted such that no more than one week shall have elapsed between the last survey and the commencement of ground disturbance activities.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors), or at a distance deemed sufficient by the qualified biologist, shall be postponed or halted until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barrier, and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur. The results of the survey, and any avoidance measures taken, shall be submitted to the County and CDFW/USFWS within 30 days of completion of the pre-construction surveys and/or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

Implementation of this measures would reduce biological resource impacts to *potentially significant, but feasibly mitigated* (Class II), similar to that defined in the OCP FEIR.

Impact BIO-5: ***Site development would interfere with the movement of resident wildlife between natural habitats in the project area and in the region*.**

1997 Impact Analysis

OCP buildout was considered to substantially affect the ability of resident wildlife to utilize travel corridor between natural habitats in the vicinity, including exposure to new sources of night light. OCP residential development of open space land would lead to fragmentation of wetland and upland habitat, and thus substantially impact the movement of resident wildlife between natural habitats in the vicinity.

These impacts on biological resources resulting from OCP buildout were considered *significant and unavoidable* (Class I).

The following measure was identified in the OCP to mitigate impacts on wetlands and riparian habitats.

KS21-BIO-3 All exterior lighting features used in development within 100 feet of the Open Space Overlay and surrounding biologically sensitive areas shall be directed away from adjacent habitat. Hoods shall be installed on lighting fixtures to prevent "spill-over" into adjacent habitat areas when deemed necessary by Planning & Development. Decorative lighting shall utilize low intensity sources.

2018 Impact Analysis

As discussed above, the proposed Neighborhoods Specific Plan includes 97 acres of undisturbed open space, 72 acres more than conceptually protected in Key Site 21. The applicant-proposed Open Space areas between the existing RMGC and Willow Creek and Hidden Valley Neighborhoods would avoidance of the riparian corridors along the three unnamed drainages feeding Orcutt Creek offsite (Dudek 2016b). Proposed replacement and restoration of native habitats within the onsite Open Space areas would reduce project impacts on wildlife corridors. Additional traffic and human encroachment within existing open space would exacerbate existing disturbance caused by RMGC recreational activity. This would be considered significant.

Mitigation Measures and Residual Impact

As noted above, proposed Open Space areas would protect ESHA and riparian corridors used by animals onsite. Habitat replacement in the form of replanted areas would reduce potential impacts on wildlife travel corridors.

Proposed 2018 Neighborhoods Specific Plan Section 8.8.4 Design Guidelines, Exterior Lighting incorporates the direction identified in OCP EIR Mitigation KS21-BIO-3 and includes further the following standards:

- No lighting may be directed into open space areas. Exterior lighting within one hundred feet of open space shall be shielded and aimed as needed to avoid spillover into open space areas.

- Lights shall have down-directed and other discreet lighting features. All luminaries shall be shielded to limit glare and shall be as low wattage as practical to achieve safe light levels.
- Security lighting shall be shielded, hooded, recessed or located in such a manner that lighting illuminates only the intended area and avoid off-site flare or spilling over of unnecessary illumination. Security light globes shall not be visible from a distance of twenty feet (20'-0") from the source.
- Entries shall be illuminated with ground mounted directional lights that illuminate the monument sign faces and do not produce reflective glare or light spill to surroundings.
- Exterior lighting within one hundred feet (100'-0") of open space must be shielded and aimed as needed to avoid spillover into open space areas. Fixtures shall direct illumination downward or toward architectural elements. Security lighting shall be shielded, hooded, recessed or located in such a manner that lighting illuminates only the intended area and avoid off-site glare or spilling or spilling over of unnecessary illumination. Security light globes shall not be visible from a distance of twenty feet from the source. The use of low-voltage lighting is encouraged wherever possible such as pathways or driveways, to reduce energy.

The residual impact on biological resources would be *significant, but feasibly mitigated* (Class II), and less than those identified in the OCP FEIR resulting from Plan buildout.

3.7.4 Cumulative Impacts

1997 Impact Analysis

Cumulative impacts from development of the Orcutt Community Plan in addition to development in the City of Santa Maria, Vandenberg Air Force Base and southwestern San Luis Obispo County was characterized to substantially impact wetlands, riparian, central dune scrub, oak woodlands, central coast scrub and sandhill chaparral communities. In particular, development of portions of the proposed golf course and Union Valley Parkway extension on the southern portions of the airport property would contribute substantially to cumulatively significant impacts to riparian scrub, oak woodland, vernal pools and sand dune complexes. The cumulative impacts were considered significant.

Mitigation Measures and Residual Impact

Although OCP Development Standards proposed to restore and preserve large stands of native habitats in permanently protected Open Space, some of these cumulative impacts were considered to be offset but not entirely mitigated. The residual impact would be *significant and unavoidable* (Class I).

2018 Impact Analysis

The proposed Specific Plan's conversion of 92.5 acres representing 6 percent of the OCP Key Sites' area to residential use, in combination with other recently completed or proposed developments in the Orcutt Community Plan area, would result in direct and indirect effects on vegetation communities, common wildlife species including prey populations, and ecosystem processes. These cumulative impacts on biological resources are considered *potentially significant*. The Proposed

project's contribution is considered relatively small and feasible mitigation exists to replace lost habitat. Cumulative impacts resulting from the buildout of the previously approved Specific Plan and new clubhouse would be similar or less than those resulting from the approved 1997 Specific Plan.

Mitigation Measures and Residual Impact

Project-specific measures identified above would reduce the proposed Project's contribution to cumulative impacts to significant but feasibly mitigated. Residual cumulative impacts on biological resources resulting from the buildout of the previously approved Specific Plan would be similar to those resulting from the approved OCP.

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3.4 CULTURAL RESOURCES

This section describes the cultural resources conditions present on site and evaluates potential impacts that would result from buildout of the proposed 2017 Neighborhoods Specific Plan.

3.4.1 Previous CEQA Review

Orcutt Community Plan

The Orcutt Community Plan (OCP) FEIR identified several significant, but feasibly mitigated impacts (Class II) on archaeological resources, including destruction of resources, increased pilferage and vandalism, removal of historically significant structures, and construction of homes that are not compatible with existing historic structures.

OCP FEIR Mitigation measures to minimize the overall and site-specific impacts on cultural resources included:

ARCH-1: All development within the boundaries of known archaeological sites shall be avoided and the site contained in open space or conservation easements to avoid damage. This area shall be seeded with shallow rooted vegetation. Capping the site may be permitted when avoidance of the site is not feasible.

ARCH-2: Where a significant archaeological site is contiguous with an area designated as Open Space, the boundaries of the Open Space Overlay (Figure 2-14) shall be adjusted to fully encompass the archaeological site and a minimum 50-foot buffer surrounding the site.

ARCH-3: If avoidance of archaeological sites is not possible, a Phase 2 subsurface testing program shall be completed prior to issuance of a Land Use Permit on the property to evaluate the nature, extent and significance of the cultural resource. If a site is to be capped, a Phase 2 subsurface testing program shall be conducted prior to capping the site. The program shall be funded by the applicant, shall be performed by a County-qualified archaeologist, shall include:

a) mapping the location of the surface remains within the proposed area of fill;

b) surface collection of artifacts;

c) excavation of a small sample of the cultural deposit to characterize the nature of the buried portions of the sites;

d) monitoring of excavations by a Native American representative; and

e) analysis of all remains, submission of a final report detailing the results of the investigations, and curation of all artifacts and records detailing the results of the investigations at a County-approved curation facility. All material used as fill deposit

shall be culturally sterile and chemically neutral.

The scope of work for the study shall be prepared by the County archaeologist or by the consultant and reviewed by the County. Based on the study, the County shall determine if additional protective measures are required.

ARCH-4: If the Phase 2 determines that a resource is significant and it cannot be avoided, then a Phase 3 Data Recovery program shall be implemented. The program shall be funded by the applicant, and shall be performed by a County-qualified archaeologist following County guidelines for Phase 3 Data Recovery programs for both prehistoric and historic resources.

ARCH-5: All earth disturbances including scarification and placement of fill within archaeological sites shall be monitored by a County-qualified archaeologist and a Native American representative pursuant to County archaeological guidelines. A contract between the County and the archaeologist, consisting of a project description and scope of work shall be prepared by the applicant. The applicant shall pay for the preparation of the contract and monitoring covered therein.

ARCH-6: The archaeological site and a 50-foot buffer area shall be temporarily fenced with chain link or other structurally sound material in the event of proposed construction within 100 feet of the sensitive area, prior to construction. Fencing shall be maintained until the archaeological site is either capped or mitigated through a data recovery program.

ARCH-7: Off-road vehicle use, unauthorized collecting of artifacts, and other activities other than development which could destroy or damage archaeological or cultural sites shall be prohibited on Key Sites #3, 12, 14, 21 and 22 and any other sites where significant resources are found. Signs shall be posted on the property to discourage these types of activities.

ARCH-8: Project applicants shall cooperate with the State of California Native American Heritage Commission. The Commission shall be notified by the Applicant when a project may potentially affect Native American cultural and religious values as they pertain to the appropriate treatment and disposition of human remains and items directly associated with Native American burials.

ARCH-9: Prior to issuance of a Land Use Permit on Key Sites that have not been surveyed [#5 (north of creek only), 9, 13, 14, 15, 16, 24, 25, 26, 27, 31, 32, 33, 34, 35, A, B, C, D, F, G, and H], a County-qualified archaeologist shall prepare a Phase 1 archaeological survey. If significant resources are found, archaeological mitigation measures ARCH 1 through 8 shall apply.

ARCH-10: In the event that archaeological or paleontological remains are uncovered during construction on any site, excavation shall be temporarily suspended and redirected until a County-qualified archaeologist and Native American representative are retained by the applicant to evaluate the find. If an archaeological site is found, Mitigation Measures ARCH-1 through ARCH-9 shall apply.

In the event burials are encountered, they will be treated according to procedures set forth in the Archaeological Resource Protection Act and implementing regulation (43 CFR Part 7), CEQA Appendix K, and the Public Resources Code Section 5097.98. These California State and local procedures require notification of the appropriate local coroner to determine the origin of the remains. If the remains are of Native American origin, procedures established by Public Resources Code Section 5097.98 regarding Native American consultation will be followed.

One cumulatively considerable *significant and unavoidable impact* (Class I) with respect to increased destruction, vandalism, and pilferage of archaeological resources was identified based on potential buildout of the OCP.

3.4.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed small changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- Under the proposed Neighborhoods Specific Plan, approximately 97 acres of undisturbed natural open space would remain in Key Site 21, which is far greater than the 25 acres under the OCP.

Regulatory Setting Changes

No changes to the Regulatory Setting, including the County of Santa Barbara Comprehensive Plan, or Land Use and Development Code, have occurred since 1997 pertaining to cultural resources.

Existing Setting

The Specific Plan area and the proposed sewer line lateral extending approximately 1,000 feet north of SR 1 on Key Site 21 have been subject to several archaeological investigations consistent with County of Santa Barbara Cultural Resource Guidelines. The results of these investigations are summarized below.

Specific Plan Area

An intensive Phase 1 archaeological surface survey was conducted by Spanne (1980). Parallel transects of 20 to 25 meters (60 to 75 feet) were used throughout the Key Site 21 area. Arroyos and erosional cut banks were also examined along with other areas where archaeological or historical sites were considered likely to occur. Hand clearing of vegetation was accomplished in those areas where surface visibility was extremely poor. Three modern trash scatters and one isolated prehistoric flake were recorded. The Monterey Chert flake was identified in the vicinity of the Rancho Maria

Golf Course (RMGC) Hole 11th green and outside of the proposed Specific Plan development footprint. It was identified in a previously disturbed area of soils where buried deposits were considered unlikely. A thorough search of the surrounding area failed to reveal any additional cultural materials. A trash deposit associated with the Rancho adobe of Luis Arrellanes was recorded outside of the Specific Plan area, on the west bank of the unnamed drainage to the west of the Rancho Maria Golf Course. The site was recorded as CA-SBA-1169/H.

The historic background of CA-SBA-1169/H and the RMGC property was subsequently analyzed by Greenwood, McIntyre, and Burkenroad (1980). Surface artifacts included bottle glass and ceramic fragments dated to between 1881 and approximately 1915. The artifacts are most likely associated with the occupation of Juan B. Arrellanes, who built a ranch three miles northeast of Casmalia sometime after 1874. Arrellanes was a cattle rancher during the 1850s, raised sheep beginning in the 1860s, and subsequently raised horses in the 1880s. He moved from his ranch to Santa Maria in 1913. CA-SBA-1169 was determined to be potentially significant resource, though it had been recently subject to illicit artifact collection previous to their study. This study also determined that the RMGC and Specific Plan area had been used for cattle grazing during the 19th century. Early in the twentieth century, the land was dry-farmed in wet years, and in dry years the ranchers relied on stock raising. Dairying became prominent later.

Spanne (2004) resurveyed the proposed Specific Plan site, using 15-meter parallel transect intervals as required by County of Santa Barbara Cultural Resource Guidelines requirements. The resulting ground surface visibility was characterized as fair and adequate to detect any cultural resources that might have been present. The golf course fairways, greens, and clubhouse/maintenance area were not surveyed. No other cultural resources were identified within the Specific Plan area.

Sewer Line Extension Area

The portion of Key Site 22 within which the proposed sewer line extension is located was subject to an intensive ground surface survey by Snethkamp and Colten (1982). The survey was conducted with 20-meter (60-foot) transect intervals, slightly greater than the 15-meter (50-foot) spacing required by County of Santa Barbara Cultural Resources Guidelines. No cultural resources were identified during this survey, but the reliability of the survey was compromised due to poor surface visibility due to dense annual grasses. Vegetation was removed with hand picks at approximate 20-meter (60-foot) intervals. An excess of 100 of these areas were cleared. Particularly close attention was paid to rodent tailings in areas of relatively high surface ground surface visibility.

The entire Key Site 22 was resurveyed using 15-meter (50-foot) survey transects consistent with County of Santa Barbara Cultural Resource Guidelines in support of the OCP EIR (Isera Group Inc. 1995). The portion of Key Site 22 within which the proposed Specific Plan sewer line extension is located was being used for cattle grazing and a portion in abandoned strawberry row crops. Surface vegetation was systematically removed to increase ground surface visibility. No prehistoric or historic cultural resources were identified within this portion of Key Site 22. CA-SBA-1159, a low density chipped stone flake scatter associated with resharpening or maintenance of stone tools is 1,000 feet from the proposed sewer line corridor, and CA-SBA-2733/H, also a low density chipped stone flake scatter with one possible groundstone fragment, and historic artifact scatter with well and cattle pond, is located within 250 feet from the sewer line.

3.4.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact CR-1: ***Development of the proposed project would not result in the direct impacts to cultural resources.***

1997 Impact Analysis

The OCP EIR identified *significant and feasibly mitigated* (Class II) impacts on Key Site 21 cultural resources, as CA-SBA-1159 would be located within an open space area outside of the potential residential development envelope. The isolated prehistoric flake artifact was located within the RMGC playing area; it would not be impacted by Key Site 21 development.

Mitigation Measures and Residual Impact

The following OCP FEIR mitigation applied to Key Site 21:

CR-1: All development within the boundaries of known archaeological sites shall be avoided and the site contained in open space or conservation easements to avoid damage. This area shall be seeded with shallow rooted vegetation. Capping the site may be permitted when avoidance of the site is not feasible.

Residual impacts on cultural resources would be *significant and feasibly mitigated* (Class II).

2018 Impact Analysis

Development under the proposed Neighborhoods Specific Plan would not directly impact CA-SBA-1159, as it would remain within the open space along the western drainage. No direct impacts to the cultural resource would occur.

No cultural resources would be impacted by extension of the sewer line on Key Site 22.

Mitigation Measures and Residual Impact

Mitigation CR-1 would continue to apply to the proposed Specific Plan. Seeding the exposed cultural resources with shallow rooted vegetation would at to stabilize the ground surface and discourage illicit artifact collection. Residual impacts would be *significant and feasibly mitigated* (Class II), similar to the OCP FEIR.

Impact CR-2: ***The proposed project would potentially result in increased public access, potential illicit artifact collection, and disturbance of archaeological resources.***

1997 Impact Analysis

The OCP EIR identified the potential for significant impact on Key Site 21 cultural resources. Although CA-SBA-1159 would be located within an open space area, additional populations associated with Key Site 21 buildout could result in increased illicit disturbance to CA-SBA-1159 deposits in the open space area outside of the potential residential development envelope. This project impact was considered significant. It also contributed to the *significant, unavoidable* (Class I) cumulative impact on cultural resources associated with OCP Buildout.

Mitigation Measures and Residual Impact

The following OCP FEIR applies to Key Site 21:

CR-2: Off-road vehicle use, unauthorized collecting of artifacts, and other activities other than development which could destroy or damage archaeological or cultural sites shall be prohibited on Key Sites #3, 12, 14, 21 and 22 and any other sites where significant resources are found. Signs shall be posted on the property to discourage these types of activities.

Implementation of CR-2 reduced project-specific indirect impacts to cultural resources to *significant, but feasibly mitigated* (Class II).

2018 Impact Analysis

Specific Plan buildout and residential populations would increase the potential for illicit artifact collection and disturbance to CA-SBA-1159 resources in the Open Space area west of the development.

Mitigation Measures and Residual Impact

Mitigation ARCH-7 would continue to apply to the proposed Specific Plan. Seeding the exposed cultural resources as identified under ARCH -1 with shallow rooted vegetation would reduce potential illicit artifact collection. Residual impacts would be *significant and feasibly mitigated* (Class II), similar to the OCP FEIR.

3.4.3 Cumulative Impacts

1997 Impact Analysis

Key Site 21 development, together with other development in the Santa Maria Valley, was considered to have a cumulatively significant impact on the remaining archaeological resources in the Orcutt Community Plan region resulting from construction of structures, roads, paths, trails, and public infrastructures such as new or enlarged pipelines, and flood control sediment basins. Increased population near significant cultural sites was considered likely to increase incidents of illicit artifact

collection and vandalism, which was also considered a significant cumulative impact. Cumulative impacts resulting from buildout of the OCP would be *potentially significant and unavoidable* (Class I). Implementation of proposed mitigation ARCH-1 through ARCH -10 would reduce the Key Site 21 contribution to *potentially adverse, but feasibly mitigated* (Class II).

2018 Impact Analysis

Project-specific direct impacts on cultural resources associated with buildout of the Specific Plan would be equivalent or less than those resulting from the approved OCP. Implementation of measures CR-1 and CR-2 would address the proposed Project's contributions to regional cumulative impacts on cultural resources, similarly reducing it to *significant but feasibly mitigated* (Class II). The resulting cumulative impact would be similar to the approved OCP Key Site buildout. Cumulative impacts resulting from buildout of the OCP would be *potentially significant and unavoidable* (Class I), similar to the to the approved OCP Key Site buildout.

References

Greenwood, Roberta S., Michael J. McIntyre, and David C. Burkenroad. 1980. *Investigation of Historical Resources, Maria Verde Estates, Orcutt.* Ms. On file, Central Coast Information Center, University of California, Santa Barbara (SR-00317).

Isera Group Inc. 1995. *Phase 1 Survey for the Orcutt Community Plan*. Ms. On file, Central Coast Information Center, University of California, Santa Barbara (SR-01801).

Snethkamp, Pandora and Roger Colten. 1982. *Orcutt Creek Archaeological Survey Letter Report*. Ms. December 14. On file, Central Coast Information Center, University of California, Santa Barbara (SR-00377).

Spanne, Laurence. 1980. *An Archaeological Evaluation Maria Verde Estates Project Orcutt Area, County of Santa Barbara*. Ms. On file, Central Coast Information Center, University of California, Santa Barbara (SR-00383).

_____. 2004. *Supplemental Phase 1 for the Proposed Supplemental Phase I Archaeological Survey Report For the Proposed Rancho Maria Estates Project, Rancho Maria Golf Club, 1950 State Highway 1, Orcutt, California*. Ms. On file, Central Coast Information Center, University of California, Santa Barbara (SR-03242).

3.5 DRAINAGE

This section describes the drainage/flooding conditions present on site and evaluates potential changes that would result from buildout of the proposed 2017 Neighborhoods Specific Plan.

3.5.1 Previous CEQA Review

Orcutt Community Plan

The Orcutt Community Plan (OCP) EIR identified *significant and unavoidable* (Class I) and *potentially significant, but feasibly mitigatable* (Class II) drainage impacts related to development within the 100-year floodplain, increased flows from impervious surfaces, decreased channel capacity from increased sedimentation, and increased flooding/sedimentation of farmland in the Guadalupe Lakes area. Site specific analysis was not performed for drainage at Key Site 21.

Orcutt Community Plan Development Standards for flooding and drainage include Action FLD-O-1.1, which requires designation of 100-year floodplains as open space. DevStds FLD-O-1.2 through FLD-O-1.4 prohibits development within such 100-year floodplains and limits types of developments in other flood-prone areas. DevStd FLD-O-2.1 requires the use of pervious construction materials to limit off-site runoff. DevStds FLD-O-3.1 through FLD-O-3.3 require incorporation of erosion control features into project development. Action FLD-O-4.1 and DevStds FLD-O-4.2 through FLD-O-4.4 require construction of regional retention basins to accommodate increased runoff associated with project development.

The following potentially significant impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact FLD-1: ***Development within the 100-year floodway***. Siting of development associated with buildout of the OCP within the FEMA designated and/or provisional floodway would increase velocities of flood waters, erosion/deposition, potential channel blockages, and flood heights on up and downstream properties, resulting in *significant and unavoidable* flooding impacts through personal injury and/or damage to property.

Impact FLD-2: ***Development within the 100-year floodplain***. Siting of development associated with buildout of the OCP within the FEMA designated 100-Year Floodplain could increase velocities of flood waters, erosion/deposition, potential channel blockages, and flooding on downstream properties, resulting in *potentially significant* flooding impacts through personal injury and/or damage to property.

Impact FLD-3: ***Increased storm flows from impervious surfaces***. Urban development associated with buildout of the OCP would lead to the creation of approximately 1,000 acres of new impervious surfaces, causing a significant increase in run-off and peak flows leading to *potentially significant* flooding impacts to streets and existing residences due to increased flood heights and inadequate channel capacities to accommodate higher flows.

Impact FLD-4: ***Decreased channel capacity from increased sedimentation***. Grading, clearing on over 1500 acres, and increased velocity of run-off associated with development permitted under the proposed Orcutt Community Plan would create *potentially significant* impacts to the capacity of both natural stream channels and County retention basins through increased erosion and downstream sedimentation, creating indirect but substantial increases in flooding through decreased channel and retention basin capacity.

Impact FLD-5: ***Increased flooding/sedimentation of farmland in the Guadalupe Lakes***. Increased urban development would lead to substantial increases in the amount and duration of run-off and sediment transport which could lead to *potentially significant* increases in the height and duration of inundation and sediment input experienced by farmers cultivating the reclaimed lake bottom land in the former Guadalupe Lakes.

3.5.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed small changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- Under the proposed Neighborhoods Specific Plan, approximately 97 acres of undisturbed natural open space would remain in Key Site 21, which is far greater than the 25 acres under the OCP.
- Runoff from the proposed lots and roadways under the Neighborhoods Specific Plan would be directed to bio-retention facilities where feasible with any possible overflow captured within desilting/retention basins.
    - ***Willow Creek Drainage (Western section):*** Drainage from the site would be directed to two (2) on-site retardation basins and five (5) bio-retention basins totaling 1.62 acres to contain a 100-year storm event, while utilizing Low Impact Design (LID) features including diversion of drainage to landscaped areas to promote infiltration. Any excess runoff will follow the historical drainage course that runs south-to-north along the center of the Neighborhoods Specific Plan area.
    - ***Hidden Canyon Drainage:*** Drainage from the site would be directed to one (1) on-site detention basin totaling 1.90 acres to contain a 100-year storm event, and to provide an overland escape to the natural drainage course near the northeast corner of the Neighborhoods Specific Plan area site utilizing Low Impact Design (LID) features include diversion of drainage to landscaped areas to promote infiltration.

      Source Control site design includes roof drains for single family lots to be directed through vegetated yard swales to promote infiltration as a first measure of treatment. Treatment control measures include low flow swales within developed

catchment areas and a detention basin to promote infiltration of the runoff from the 1.2" storm event.

- The Neighborhoods Specific Plan has Design Guidelines that require the following measures be reflected in the Conceptual Grading Plan:

    - Create residential lots that provide positive drainage to the street.
    - Any temporary or permanent ground disturbance on slopes shall be treated with erosion control measures within 30 days of disturbance.
    - Any permanent grading shall be planted within four weeks with permanent planning appropriate to landscape zone the slope occurs in, along with appropriate irrigation and/or erosion fabric, seed or other treatment, to protect the slope from erosion.
    - Graded areas shall be revegetated within four weeks of grading activities with deep rooted, native, drought-tolerant species to minimize slop failure and erosion potential. If necessary, as determined by the Planning and Development Department, irrigation shall be provided. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.
    - During the rainy season (October 1st through March 30th, slopes shall be treated for erosion control immediately. Verify with County of Santa Barbara Public Works Standards.
    - All site drainage shall be directed away from structures per County and applicable building code standards.
    - Landscaped areas adjacent to structures shall be graded so that drainage is away from structures.
    - Methods such as retention basins, drainage diversion structures, spot grading, silt fencing/coordinated sediment trapping, straw bales, and sand bags, etc. shall be used to prevent erosion on slopes and siltation during grading and construction activities.
    - After construction of tract improvements and until construction of individual homes, exposed areas shall be stabilized to prevent wind and water erosion, using methods approved by Planning and Development Grading Division and Air Pollution Control District.
    - Excavation and grading shall be limited to the dry season of the year (i.e., April 1st to September 30th) unless a Planning and Development Building and Safety approved erosion control plan is in place and all measures therein are in effect.
- The Neighborhoods Specific Plan Design Guidelines also require drainage from development areas to be conveyed to retention basins through oil and trash filters before entering any natural drainages.

Regulatory Setting Changes

No changes to the Regulatory Setting, including the County of Santa Barbara Comprehensive Plan, or Land Use and Development Code, have occurred since 1997 pertaining to drainage impacts. The County of Santa Barbara Water Resources Division, Project Clean Water, has developed the 2012 Storm Water Management Program Guidance Document for Municipal Stormwater Permits. The document provides direction for development and implementation of Best Management Practices (BMP) to address potential stormwater pollution impacts and ensure consistent treatment of water

quality, consistent with the National Pollution Discharge Elimination System (NPDES) Phase II permit regulations requiring the development of a Storm Water Pollution Prevention Plan (SWPPP) for projects over one-acre in size.

Existing Setting

The Neighborhoods Specific Plan occurs at the base of the northern flanks of east-west trending Casmalia Hills. The topography consists of gentle slopes that reach 420 feet in elevation along the southern perimeter of the site, dropping to 220 feet elevation at the northwest concern of the property. Three unnamed drainages flow in a northwesterly direction across the Specific Plan Area and are tributaries to Orcutt Creek. Runoff drains by sheet flow and outlets to a culvert crossing beneath Highway 1. Some runoff from the site is detained in four existing ponds located near golf course holes 15, 16, and 17.

Orcutt Creek is located approximately 2,500 to the north of the proposed project The FEMA-designated 100-year floodplain ranges from 250 to 2,000 feet along Orcutt Creek. According to FEMA Flood Insurance Maps (FIRMs), the entire project area is outside the 100-year and 500-year floodplain.

3.5.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact FLD-1: ***No Specific Plan Development would occur within the 100-year floodway.***

<u>1997 Impact Analysis</u>

The OCP EIR identified *significant and unavoidable* (Class I) flooding impacts from siting development associated with buildout of the OCP within the FEMA designated and/or provisional floodway. This buildout would increase velocities of flood waters, erosion/deposition, potential channel blockages, and flood heights on up and downstream properties, resulting in flooding impacts through personal injury and/or damage to property.

Mitigation Measures and Residual Impact

The existing development standards in the OCP described in 3.5.1 “Previous CEQA Review” would serve to mitigate these impacts.

The OCP also identified measures that would minimize drainage impacts:

FLD-1.1 The County shall apply the Orcutt Open Space Overlay to all areas within the 100 year floodplain and floodway of Orcutt, Pine Canyon and Graciosa Creeks.

FLD-1.2 No development shall be permitted within the FIRM-designated 100-year floodway, unless it can be demonstrated that such development would not result in increased

flooding impacts up- or down-stream. All off-setting improvements (e.g., conveyance capacity, erosive velocity, etc.) shall be determined by Flood Control to cause no cumulative impacts to up- or down-stream flood waters in accordance with County Ordinance #3098.

FLD-1.3 No development shall be permitted within 50' of the FIRM-designated 100-year floodway, except in limited circumstances where necessary to provide reasonable development level. Where necessary to develop within the 100-year floodplain, special measures including but not limited to elevation of finish floor surfaces to 2' above flood level, shall be incorporated into project design.

FLD-1.4 Residential units requiring raised finish floor elevations in areas prone to flooding shall be constructed on raised foundations rather than fill material where practical. Special consideration shall be given to the location of yards and garages in these areas, including but not limited to Department of Real Estate disclosures regarding potential flooding of yards and non-habitable structures.

The residual impact on drainage after mitigation would remain *significant and unavoidable* (Class I).

2018 Impact Analysis

Development under the proposed Neighborhoods Specific Plan would not occur within the 100-year flood plain. Therefore, no impacts to drainage would occur.

Mitigation Measures and Residual Impact

No mitigation measures would be required and no residual impact would result.

Impact FLD-2: *No Specific Plan development would occur within the 100-year floodway.*

1997 Impact Analysis

The OCP EIR identified *potentially significant, but feasibly mitigatable* (Class II) flooding impacts from siting development associated with buildout of the OCP within the FEMA designated 100-Year Floodplain. This could increase velocities of flood waters, erosion/deposition, potential channel blockages, and flooding on downstream properties, resulting in potentially significant flooding impacts through personal injury and/or damage to property.

Mitigation Measures and Residual Impact

The existing development standards in the OCP described in 3.5.1 “Previous CEQA Review” would serve to mitigate these impacts.

The OCP also identified measures that would minimize drainage impacts, which include FLD-1.1, FLD-1.3, and FLD-1.4 described in Section 3.5.3 for Impact FLD-1.

The residual impact on drainage after mitigation would be *adverse, but less than significant* (Class II).

2018 Impact Analysis

Development under the proposed Neighborhoods Specific Plan would not occur within the 100-year floodway. Therefore, no impacts to drainage would occur.

Mitigation Measures and Residual Impact

No mitigation measures would be required and no residual impact would result.

Impact FLD-3: *Specific Plan development would increase impervious surface areas, resulting in increased storm flows*.

1997 Impact Analysis

The OCP EIR identified *potentially significant, but feasibly mitigatable* (Class II) drainage impacts from urban development associated with buildout of the OCP, which would lead to the creation of approximately 1,000 acres of new impervious surfaces. The increase in impervious surfaces would cause a significant increase in run-off and peak flows leading to potentially significant flooding impacts to streets and existing residences due to increased flood heights and inadequate channel capacities to accommodate higher flows.

Mitigation Measures and Residual Impact

The existing development standards in the OCP described in 3.5.1 "Previous CEQA Review" would serve to mitigate these impacts.

The OCP also identified measures that would minimize drainage impacts:

FLD-3.1 All development shall contribute its proportionate share of installation and maintenance for a regional retention basin. Prior to land use clearance, all new developments shall purchase capacity within regional recharge basins as determined appropriate by the Flood Control District (flooding volumes shall be noted on all Development Plans). In the event a regional retention basin to serve the site is unplanned and/or unavailable, the development shall provide on-site retention facilities with a sufficient capacity to reduce site runoff to County Flood Control District standards. Wherever feasible, on-site facilities shall be dual use (e.g. ball fields, park facilities).

FLD-3.2 Regional retention basins shall be designed to minimize liability through the use of fencing for liability purposes. Design standards such as slope control shall be used. Where appropriate, regional basins shall provide for recreational uses.

FLD-3.3 The County shall form an Assessment District (i.e., Parks and Open Space Maintenance District) to provide for the maintenance of regional retention basins.

All regional retention basins shall be owned and maintained by this newly created district. Development of Key Sites along Orcutt Creek and contributing major tributaries shall be subject to special requirements, including but not limited to special fees, subject to review and approval by Flood Control, to compensate for increased erosion and sedimentation of the Creek.

FLD-3.4 Pervious construction materials (turf-block, non-grouted brick, gravel, etc.) shall be used where appropriate in all developments in order to minimize the amount of runoff conveyed offsite.

FLD-3.5 Drainage outlets into natural creek channels shall be constructed in a manner which causes outlet flow to approximate the general direction of natural stream flow. Energy dissipators beneath outlet points shall be incorporated where appropriate, and designed to minimize damage to riparian vegetation.

The residual impact on drainage after mitigation would be *potentially significant but feasibly mitigated* (Class II).

2018 Impact Analysis

Drainage impacts associated with increased storm flows from impervious surfaces from buildout of the Neighborhoods Specific Plan would be less than the previously approved 1997 OCP. Under the proposed Neighborhoods Specific Plan, fewer homes would be built and approximately 97 acres of undisturbed natural open space would remain in Key Site 21, which is far greater than the 25 acres proposed for Key 21 under the OCP buildout. With decreased impervious surface area, more natural infiltration would occur, thereby decreasing the volume and acceleration of stream flows. The total amount of impervious surface resulting from Specific Plan buildout would increase by an estimated 62.7 acres (residential development and roads). This would represent an 18.4 percent increase in impervious surfaces, which is less than the County threshold of 25 percent for related impacts to hydrology and water quality (County of Santa Barbara Planning and Development Environmental Thresholds and Guidelines Manual). Additionally, the Neighborhoods Specific Plan Design Guidelines described in Section 3.5.2 “Project Description Changes” and implementation of the SWPPP described in Section 3.5.1 “Regulatory Setting Changes” would further reduce impacts to drainage. Therefore, impacts to drainage would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on drainage would be less than significant, no mitigation measures would be required. Potential impacts would be adequately addressed through existing design guidelines, conceptual grading plan, and implementation of the SWPPP. Residual impacts on drainage would be *adverse, but less than significant* (Class III).

Impact FLD-4: *Specific Plan development would increase runoff and associated sedimentation that would decreased creek channel capacities.*

1997 Impact Analysis

The OCP EIR identified *potentially significant, but feasibly mitigatable* (Class II) to drainage from grading, clearing on over 1500 acres, and increased velocity of run-off associated with development permitted under the proposed Orcutt Community Plan. This would decrease the capacity of both natural stream channels and County retention basins through increased erosion and downstream sedimentation, creating indirect but substantial increases in flooding through decreased channel and retention basin capacity.

Mitigation Measures and Residual Impact

The existing development standards in the OCP described in 3.5.1 "Previous CEQA Review" would serve to mitigate these impacts.

The OCP also identified measures that would minimize drainage impacts, which include FLD-3.1 through FLD-3.5 described in Section 3.5.3 for Impact FLD-3 as well as the following:

FLD-4.1 Silt fencing, straw bales, sand bags, sediment basins, etc., shall be used in conjunction with other methods to prevent erosion on slopes and siltation of the stream channel. In foothill areas, cut and fill slopes shall be planted with slope-stabilizing vegetation -- native species only shall be planted within open space corridors -- including oak trees and appropriate shrubs, and shall be irrigated until established.

FLD-4.2 In accordance with current Flood Control District practices, the County shall determine the necessity of desilting portions of Orcutt Creek to prepare for new development associated with the proposed OCP.

The residual impact on drainage after mitigation would be *potentially significant but feasibly mitigated* (Class II).

2018 Impact Analysis

As discussed in Section 3.5.3 for Impact FLD-3, the increase in impervious surfaces under buildout of the Neighborhoods Specific Plan would not exceed the related County threshold for hydrology and water quality of 25 percent. Implementation of the Design Guidelines described in Section 3.5.2 "Project Description Changes" and the SWPPP described in Section 3.5.1 "Regulatory Setting Changes" would further reduce potential Specific Plan runoff and associated sedimentation impacting the unnamed tributary to Orcutt Creek in the central portion of the site. Thus, impacts to onsite and offsite drainage due to sedimentation would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on drainage would be less than significant, no mitigation measures would be required. Potential impacts would be adequately addressed through existing design guidelines, conceptual grading plan, and implementation of the SWPPP. The residual impact on drainage would be *adverse, but less than significant* (Class III).

Impact FLD-5: *Specific Plan development would increase sedimentation of farmland in the Guadalupe Lakes*.

1997 Impact Analysis

The OCP EIR identified *potentially significant, but feasibly mitigatable* (Class II) to drainage from increased urban development associated with buildout of the Neighborhoods Specific Plan. Development would lead to substantial increases in the amount and duration of run-off and sediment transport which could lead to *potentially significant* increases in the height and duration of inundation and sediment input experienced by farmers cultivating the reclaimed lake bottom land in the former Guadalupe Lakes.

Mitigation Measures and Residual Impact

The existing development standards in the OCP described in 3.5.1 "Previous CEQA Review" would serve to mitigate these impacts.

The OCP also identified measures that would minimize drainage impacts, which include FLD-3.1 through FLD-3.5 described in Section 3.5.3 for Impact FLD-3, FLD-4.1 and FLD-4.2 described in Section 3.5.3 for Impact FLD-4 as well as the following:

FLD-5.1 Where feasible, all open space/undeveloped areas associated with structural development projects shall incorporate sedimentation traps to minimize the erosion of soils into natural and man-made flood control drainages. All new development adjacent to stream channels shall be required to install check dams as deemed appropriate by Flood Control to minimize channel down cutting and erosion. All such structures shall be designed to avoid impacts to riparian vegetation and biological resources to the maximum extent feasible.

FLD-5.2 All development east of US Highway 101 shall provide 100% containment of 100-year storm flows onsite, including agricultural activities.

The residual impact on drainage after mitigation would be *potentially significant but feasibly mitigated* (Class II).

2018 Impact Analysis

As discussed in Section 3.5.3 for Impact FLD-3, the increase in impervious surfaces under buildout of the Neighborhoods Specific Plan would not exceed the related County threshold for hydrology and water quality of 25 percent. Implementation of the Design Guidelines described in Section 3.5.2 "Project Description Changes" and the SWPPP described in Section 3.5.1 "Regulatory Setting Changes" would further reduce drainage impacts under the Neighborhoods Specific Plan. Thus, impacts to drainage would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on drainage would be less than significant, no mitigation measures would be required. Potential impacts would be adequately addressed through existing design guidelines, conceptual grading plan, and implementation of the SWPPP. The residual impact on drainage would be *adverse, but less than significant* (Class III).

3.5.4 Cumulative Impacts

1997 Impact Analysis

Potentially significant, but feasibly mitigatable (Class II) cumulative impacts were identified resulting from OCP buildout due to increased storm flows, erosion and sedimentation, flooding, personal injury and property damage. Implementation of FLD-3.4 and FLD-3.5 described in Section 3.5.3 for Impact FLD-3, FLD-4.1 and FLD-4.2 described in Section 3.5.3 for Impact FLD-4, and FLD-5.1 described in Section 3.5.3 for Impact FLD-5 would serve to mitigate these impacts. The residual impact on drainage after mitigation would be *potentially significant but feasibly mitigated* (Class II).

2018 Impact Analysis

Buildout under the Neighborhoods Specific Plan would be subject to Santa Barbara County Flood Control District review and approval relative to accommodating surface flows and retention of runoff onsite. Implementation of the design guidelines as well as the NPDES Phase II SWPPP water quality ordinances would ensure that incremental buildout of development throughout the OCP Plan area occurs with Best Management Practices addressing drainage and surface water quality protection. Thus, the proposed Specific Plan's contribution to cumulative development in the Orcutt planning area would remain reduced to *potentially significant but feasibly mitigated* (Class II).

3.6 FIRE

This section describes the existing fire hazards associated with the project site, regional firefighting resources, and analyzes potential changes that would result from buildout of the Neighborhoods Specific Plan.

3.5.1 Previous CEQA Review

Orcutt Community Plan

Evaluation of fire issues in the Orcutt Community Plan (OCP) focused on identifying high fire hazard areas community-wide. Site specific analysis was not performed for fire hazards at Key Site 21 (the Project site).

The OCP EIR analysis identified several *potentially significant, unavoidable impacts* (Class I) associated with decreasing the ratio of firefighters to populace, development outside of existing five-minute response area, wildland fire hazards, and fiscal impacts to the fire district.

Development standards were incorporated in the OCP to minimize the impacts on fire protection. OCP Development Standards FIRE-2.1 states that development within or adjacent to high fire hazard areas shall include fire preventive measures as discussed in the OCP (1997). In addition, development standards FIRE-2.2 and FIRE-2.3 state that the County shall require two routes of ingress and egress for new developments and Orcutt foothill development shall be protected by water storage tanks connected to an existing water purveyor or private water supplies. Program FIRE-2.4 requires that the County Planning and Development Department and Fire Department create a Fuel Management Program in undeveloped natural open space areas. Development Standards FIRE-3.1 and FIRE-3.2 require that fuel-breaks incorporate perimeter roads and yards and that they avoid riparian or wetland areas and not require removal of healthy specimen oaks to the greatest extent feasible.

The following potentially significant impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact FIRE-1: ***Inadequate Number of Firefighters***. At OCP buildout, the current substandard ratio of fire fighters to residents served would increase from 1:1,400 to 1:1,600, resulting in potentially longer response times and the potential for conflicting calls without adequate back up that would exacerbate significant impacts to public health and safety.

Impact FIRE-2: ***Development Outside of Existing Five Minute Response Areas***. OCP Buildout would extend urban development into areas beyond a 5-minute Fire Department response time. In addition, the OCP Buildout population including 18,000 additional residents would potentially generate the need for a new fire station to achieve acceptable 5-minute response times throughout the OCP area.

Impact FIRE-3: *Wildland Fire Hazards*. Development in the high fire hazard areas of the Solomon Hills with steeper slopes would result in potentially significant impacts to public health and safety. Additional residential buildout would be surrounded by high fuel loads representing potential flammable opportunities during wildland fires carried by prevailing winds. Steep access and topography would increase the difficulty of controlling fires under these conditions.

Impact FIRE-4: *Fiscal Impacts to Fire District*: When combined with ongoing budget shortfalls, the inadequate revenue stream generated by new OCP buildout would not necessarily provide inadequate funding to hire sufficient numbers of firefighters, resulting in potentially significant impacts to public health and safety.

3.6.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- The proposed Neighborhoods Specific Plan would include developer fees paid to finance additional fire protection services as determined in the County adopted Development Impact Mitigation Fees for the Orcutt Planning Area.
- A 500,000-gallon water storage tank would be provided for each neighborhood. Standard Fire Department infrastructure including fire hydrants would be placed throughout the Specific Plan internal streets.
- Under the Neighborhoods Specific Plan, there would be two routes of ingress and egress for each neighborhood. Three new private roads off SR 1 would be constructed. The new primary private access roads would be 38-feet wide, with parking allowed on both sides. The new secondary private roads would be 24-feet wide, with no parking allowed. All roads would be paved.
    - *Willow Creek (Western section):* A new private road would be constructed approximately 1,200 feet west of the main entrance to the Rancho Maria Golf Course (Golf Course) and would serve the 90 home sites at the "Willow Creek" neighborhood. Secondary egress would be through the existing emergency vehicular access (EVA) easement through the Golf Course parking lot and through the existing Golf Course entrance that is part of APN 113-250-015. The secondary egress would be accessed through a private road and would be egress gated for residents; it would be secured by a Knox Box for full access to emergency personnel only.
    - *Hidden Canyon (Eastern section):* Two new private roads would be constructed approximately 1,100 and 1,900 feet east of the existing Golf Course entry to provide primary and secondary access to the 56 home sites of the "Hidden Canyon" neighborhood. Secondary egress would be through a driveway and road at the

eastern edge of the Hidden Canyon neighborhood providing a right turn egress onto State Highway 1. A raised "pork chop" median island to discourage left turns onto State Highway 1 but allow access for emergency personnel would be installed at the driveway along with signage for a right turn only. The primary private entrance road to this neighborhood would be located approximately 800' to the west of the secondary egress.

- The Neighborhoods Specific Plan Design Guidelines prohibit wooden roofs and require roofing material to be made of concrete tile, fire flat or barrel clay tiles, slate, or triple laminate (Class A firing rating materials).
- The Neighborhoods Specific Plan designates land outside the building envelope and/or approved fence line as native open space that is not to be developed or landscaped. Annual grass cutting or tree trimming to minimize fire hazards is allowed outside the building envelope or fence line.
- No wooden fencing would occur within100 feet of an open space area that is not developed or landscaped.
- Neighborhoods Specific Plan Design Guidelines include Fuel Modification Standards to reduce high fire hazard risks:
    - **General:** Vegetation management planting and thinning shall be implemented within a 100-foot vegetation management zone from residential structures adjacent to open natural areas intended for fire risk reduction. Individual residential lots shall incorporate low fuel and/or fire resistant plants into the design of the rear yard landscape.
    - **Residential graded pad-ornamental landscape zone:** The graded pad may consist of lawn and irrigated ground cover and shrubs and is considered an "irrigated zone," equivalent to a "total clear zone." Trees in this zone must be ten feet or more away from the residence.
    - **Landform graded slope zone (irrigated):** This zone includes the landform graded slopes created with grading of the residential pads. This zone shall begin a transition from the ornamental landscape to a more natural, but generally low fuel, landscape. This zone shall not include high fuel plants such as Chemise, Black sage, California sage and Coyote bush. Screen planting shall be arranged in a mosaic manner that limits the possibility of creating a fuel ladder into trees. This zone may extend beyond the graded slope into undisturbed open areas to allow for a naturalistic edge to be created that is visually harmonious with the larger natural setting. Irrigation shall be limited to the created slope and not extend into the undisturbed areas.
    - **Fuel Reduction Zone in natural areas:** Thinning of vegetation if necessary at the interface between the open space and the landform graded slope zone may include removal of dead wood and downed limbs in trees. Shrub thinning shall be done to transition smoothly into the adjoining undisturbed native plant community. Avoid contrived pruning and shaping to maintain a natural appearance.
    - **Tree Trimming:** - Limbing of native trees (only if required to protect existing trees within the 100-foot fuel modification zone) and other incidental exotic trees such as eucalyptus or pine shall be up to six feet for Coast Live Oak and eight feet for all other species. Small oaks shall be limbed up to 1/3 of the tree's height.

Regulatory Setting Changes

The Community Facilities District (CFD) No. 2002-1 was established by the County under the Mello-Roos Community Facilities Act to address the ongoing maintenance and operation of certain public services and facilities associated with new development. The CFD would finance the maintenance of parks, parkways, open space, trails, and detention basins, as identified in the Fiscal Impact Report that was used as a basis for determining net cost impacts of new development. In addition, the CFD would finance operational costs associated with the additional demands on fire supression services resulting from project build out. Financing is provided by a three-tiered Special Tax. A Special Tax levy is collected on new developments within the CFD and is subject to annual cost adjustments.

No changes to the County of Santa Barbara Comprehensive Plan or Land Use and Development Code have occurred since 1997 that affect the analysis of fire. No thresholds specific to fire impacts exist in the County of Santa Barbara Thresholds and Guidelines Manual. However, based on Santa Barbara County Fire Department standards, impacts related to fire safety would be considered significant if the project would result in the following:

- Development would occur in a high fire hazard area.
- A decrease in the level of fire protection service would occur such that:
    - The ratio of fire fighters to the population served would exceed one on-duty fire fighter per 4,000 population served; or
    - Development would occur outside the 5-minute response time from the nearest fire station.
- Inadequate emergency access:
    - Access roads would not meet a 24-feet minimum width without parking or an unobstructed width of no less than 20 feet when there is parking;
    - Driveways serving residences on one parcel would not have a minimum width of 12 feet;
    - Cul-de-sac diameters would not be at least 40 feet;
    - Road grades would exceed 15 percent;
    - Roads would be blocked by a non-approved Fire Department gated access locking system; or
    - Roads would not meet surface standards (CFC 503.2.3).
- All structures outside the Urban Limit Line and all new one- and two-family dwellings would not have a system of internal fire sprinklers.
- Inadequate water supply or pressure to fight fires would result because:
    - Water pressures would be less than 750 gallons per minute at 20 pounds per square inch residual; and/or
    - Sprinklered buildings would not have 2,500 gallons of water reserved for fire protection.

Existing Setting

The Specific Plan area is located within a County designated “high fire hazard area.” The topography consists of gentle slopes that reach 420 feet in elevation along the southern perimeter of the site, dropping to 220 feet elevation at the northwest concern of the property. Portions of the Specific Plan

area have slopes exceeding 20 percent. Vegetation on the site consists of highly flammable chaparral as well as oak woodland, oak savannah, coastal sage scrub, and native grasses with the exception of the golf course, which consists of approximately 127 acres irrigated turf. The golf course is served by an existing well that can produce up to 580 gallons per minute.

The County Fire Department provides fire protection for Orcutt and the Specific Plan area. The closest fire station is County Station 21 located at 355 Union Avenue, approximately 2.8 miles east of the project site. The Project site is within the Station 21 5-minute response area (Glenn Fidler, personal communication 2018). Additional backup assistance would be provided by County Station 22 approximately 5.1 miles from the Project site at 1600 Tiffany Park Court, Santa Maria.

Fire Department mitigation fees, developed through a Nexus study that considered the potential buildout under the OCP, have been implemented to fund adequate fire protection services for the area (Glenn Fidler, personal communication 2018,). Property taxes generated by development also assist with funding staff (Glenn Fidler, personal communication 2018).

Only one route of ingress and egress currently exists on site: the Rancho Maria Golf Course (RMGC) entrance road extends south from SR 1 and terminates in a parking lot. Casmalia Road is paved and is approximately 18-feet in width. The RMGC paved parking lot has an unobstructed road width that varies from approximately19 to 30 feet.

3.6.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the proposed Specific Plan.

Impact FIRE-1: ***Inadequate Number of Firefighters.***

<u>1997 Impact Analysis</u>

The OCP EIR identified *potentially significant and unavoidable* (Class I) impacts to public health and safety. At buildout, current substandard ratio of fire fighters to residents served would increase from 1:1,400 to 1:1,600, resulting in fewer responding firefighters, potentially longer response times, and the potential for conflicting calls without adequate back up.

Mitigation Measures and Residual Impact

The existing policies described in Section 3.6.1 “CEQA Review” would serve to mitigate these impacts.

The OCP also identified measures that would minimize potential fire hazards:

FIRE-1.1: As funds become available, the County shall hire additional firefighters with the goal of maintaining the firefighter/population ratio of 1:4,000 or better.

FIRE-1.2: Each residential unit shall be assessed a $350 mitigation fee, and each commercial

building shall be assessed a $350 plus $0.25 per square foot mitigation fee. The County Fire Department shall periodically reassess these fees for adequacy in meeting the total firefighting needs of the community at buildout.

FIRE-1.3: Within the urban limit line, buildings over 5,000 square feet shall install sprinkler systems.

FIRE-1.4: As funds become available, Fire Station 25 shall be provided in western Orcutt.

FIRE-1.5: All development located outside the Urban Boundary Line shall incorporate the use of sprinkler systems and/or other mitigation as identified by the Fire Department.

FIRE-1.6: All new development shall adhere to access, building, and water availability standards as outlined in the Uniform Fire Code, unless directed otherwise by the Fire Department. Two routes of ingress and egress shall be provided for all developments.

FIRE-1.7: In the foothills, the owner/developer shall construct fire breaks of at least 100 feet between development and foothill vegetation. Undergrowth shall be mowed annually and mature oak trees shall be trimmed up to a height of six feet. Designated open space within the Open Space Overlay shall constitute not more than 25 percent of the width of the fire break**.**

Though impacts can be reduced through mitigation, they remain *significant* (Class I) due to the preexisting shortage of fire protection service in Orcutt and lack of available funding. Additional increase in populace would further decrease the level of fire service unless another source of funding is identified.

2018 Impact Analysis

Though there would be four fewer residences under the Neighborhoods Specific Plan than the OCP, the increase in population under buildout of the Neighborhoods Specific Plan would still result in *potentially significant* impacts to public health and safety from fewer responding firefighters per resident, potentially longer response times, and the potential for conflicting calls without adequate back up. However, the development standards and design guidelines described in Section 3.6.2. "Project Description Changes" for the Neighborhoods Specific Plan incorporate applicable fire protection regulations and would reduce the demand for fire protection services by minimizing fire risk. Additionally, payment of mitigation fees and property taxes generated by buildout would provide adequate funding to address the proposed Project's contribution to regional fire protection services as described in Section 3.6.2 "Existing Setting." Thus, impacts on fire hazards response would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As Project impacts on Fire would be less than significant, no additional mitigation is required. Residual impacts on fire would be *adverse, but less than significant* (Class III).

Impact FIRE-2: *Development Outside of Existing Five-Minute Response Areas.*

1997 Impact Analysis

The OCP EIR identified *potentially significant, but not feasibly mitigatable* (Class I) impacts to the public health and safety of future and existing residents due to the extension of urban development into areas which cannot currently be reached by the Fire Department within five minutes. Longer waits for fire services, when combined with an overall increase in population of 18,000 new residents, could create the need for a new fire station.

Mitigation Measures and Residual Impact

The existing policies described in Section 3.6.1 "CEQA Review" would serve to mitigate these impacts.

The OCP also identified measures that would minimize impacts. These include FIRE-1.2 through FIRE-1.6 described in Section 3.6.3 for Impact FIRE-1.

As described in Section 3.6.3 for Impact FIRE-1, impacts would be *significant and unavoidable* (Class I) due to the preexisting shortage of fire protection service in Orcutt and lack of available funding.

2018 Impact Analysis

As discussed in Section 3.6.2 "Existing Setting," the Neighborhoods Specific Plan area is within a 5-minute response area of Fire Station 21. Thus, impacts on fire emergency response resulting from proposed Neighborhoods Specific Plan buildout would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As Project impacts on Fire would be less than significant, no additional mitigation is required. Residual impacts on fire would be *adverse, but less than significant* (Class III).

Impact FIRE-3: *Wildland Fire Hazards.*

1997 Impact Analysis

The OCP EIR identified *potentially significant, but not feasibly mitigatable* (Class I) impacts to public health and safety due to development in the high fire hazard areas of the Solomon Hills, which would increase the exposure of existing and new residents and structures to high fire hazards from wildland fires sweeping down from the Hills. This would be exacerbated by high fuel loads on developable parcels, hundreds of new homes, minimal access, and steep slopes which make controlling fires quickly more difficult.

Mitigation Measures and Residual Impact

The existing policies described in Section 3.6.1 "CEQA Review" would serve to mitigate these impacts.

The following measures were identified in the OCP to address potentially significant impacts associated with fire hazards:

FIRE-3.1: No structural development shall occur within 100 feet of flammable vegetation with the exception of required paved access points to the outside edge of the development to provide access for fire-fighting equipment and fencing composed of non-flammable material. Landscaping within this setback shall not prevent fire-fighting equipment from being utilized in this area.

FIRE-3.2: Class A roofs shall be required for all new developments. The County should adopt a Class A roof retrofit program for existing structures within 1/4 mile of the perimeter of the urban/wildland interface.

FIRE-3.3: All development in the foothills shall be supplied with water storage tanks to be maintained by assessment fees.

FIRE-3.4: Any fencing within these structural setbacks shall be composed of non-flammable material.

FIRE-3.5: Planning & Development, with input from the County Fire Department, shall prepare a Fuel Management Program for wild lands within the open space overlay which could include a controlled burn program for the Solomon Hills. This program shall be funded by development on foothill parcels.

As described in Section 3.6.3 for Impact FIRE-1, impacts would be *significant and unavoidable* (Class I) due to the preexisting shortage of fire protection service in Orcutt, lack of available funding, and inability to reduce wildland fire hazards without destroying the integrity of biological communities.

<u>2018 Impact Analysis</u>

Buildout of the Neighborhoods Specific Plan would occur within a County designated "high fire hazard area." Increased exposure of 146 new single-family residences and associated population to high fire hazards would be a *potentially significant impact*. The Neighborhoods Specific Plan Section 3.6.2. "Project Description Changes" incorporate applicable fire protection regulations and would reduce fire hazard risks. The secondary emergency access from the Willow Creek Neighborhood to SR 1 would utilize the existing RMGC entrance road and pass through the existing parking lot. Sufficient room exists to accommodate the necessary 24-feet minimum width for the access road by expanding to the west, in currently undeveloped areas outside of the RMGC playing area, and 20 feet within the existing parking area. Available undeveloped area exists on the west side of the parking lot, outside of the RMGC playing area. Therefore, development of the required secondary emergency access is considered feasible. This infrastructure is required to address standard Fire Department conditions for secondary emergency access.

Mitigation Measures and Residual Impact

FIRE-3.6: Secondary Emergency Willow Creek Neighborhood Access Plan shall be prepared for review and approval of the Santa Barbara Fire Department incorporating the following components:

1. The existing RMGC entrance road shall be widened to 24 feet by expanding the current pavement westward 6 feet, within currently undeveloped open space that is outside of the RMGC playing area.
2. The existing RMGC parking lot shall be reconfigured to provide for a 20-foot wide, two-lane roadway connecting with the Willow Creek Neighborhood secondary access to the south. The redesigned parking lot shall maintain the existing 101 regular spaces and 4 handicap spaces. The reconfigured parking lot shall be extended as necessary westward within existing undeveloped open space that is outside of the RMGC playing area.

Implementation of mitigation measure FIRE-3.6 would ensure sufficient Willow Creek Neighborhood secondary emergency access. Residual project-specific impacts on Fire would be *potentially significant, but feasibly mitigated* (Class II).

Impact FIRE-4: *Fiscal Impacts to Fire District.*

<u>1997 Impact Analysis</u>

The OCP EIR identified *potentially significant and unavoidable* (Class I) impacts to public health and safety due to budget shortfalls and an inadequate revenue stream generated by projected development, resulting in the inability of the Fire Protection District to hire new firefighters.

Mitigation and Residual Impact

The existing policies described in Section 3.6.1 “CEQA Review” would serve to mitigate these impacts.

The OCP also identified measure FIRE-1.2 described in Section 3.6.3 for Impact FIRE-1 to minimize potential fire hazards.

As described in Section 3.6.3 for Impact FIRE-1, impacts resulting from OCP buildout were projected to be *significant and unavoidable* (Class I) due to the preexisting lack of available funding in Orcutt.

<u>2018 Impact Analysis</u>

Though the Neighborhoods Specific Plan would result in four fewer single-family residences than projected under OCP Key Site 21 buildout, the increase in proposed Specific Plan population would still result in *potentially significant* impacts to public health and safety. Increased population would result in exacerbating the ratio of responding firefighters per resident in the OCP area, potentially longer response times, and the potential for conflicting calls without adequate back up. However, mitigation fees under the Neighborhoods Specific Plan as described in Section 3.6.2. “Project

Description Changes" and property taxes generated from buildout, would be adequate to fund additional fire protection services (Glenn Fidler, personal communication 2018). Thus, impacts on Fire would be *adverse, but less than significant* (Class III).

Mitigation and Residual Impact

As Project impacts on Fire would be less than significant, no additional mitigation is required. Residual impacts on fire would be *adverse, but less than significant* (Class III).

3.6.4 Cumulative Impacts

1997 Impact Analysis

Population growth associated with buildout under the Orcutt Community Plan would result in *potentially significant* cumulative impacts to public health and safety due to an increased demand for fire protection services in the region. As described in Section 3.6.3 for Impact FIRE-1, impacts would be *significant and unavoidable* (Class I), because of the pre-existing shortage of fire protection services in the region and lack of available funding.

2018 Impact Analysis

Implementation of the development standards and design guidelines described in Section 3.6.2. "Project Description Changes" as well as measure FIRE-3.6 would significantly reduce fire hazard risks on site. Therefore, the contribution of Neighborhoods Specific Plan buildout to the cumulative demand on existing fire protection services in the region would be reduced to less than cumulatively considerable. Any additional services needed as a result of buildout of the Neighborhoods Specific Plan would be adequately financed through development mitigation fees and property taxes collected at buildout as described in Section 3.6.3 for Impact FIRE-4. The Neighborhoods Specific Plan contribution to cumulative impacts on fire hazards in the region would be *adverse, but less than significant* (Class III).

References

Fidler, Glenn. 2018. Personal communication. Planning & Engineering Supervisor, Santa Barbara County Fire Department. January 25.

3.7 GEOLOGIC RESOURCES

This section describes the grading conditions present on the project site and evaluates potential geological hazards that could affect or be caused by the proposed development.

3.7.1 Previous CEQA Review

Orcutt Community Plan

Evaluation of geologic resources in the Orcutt Community Plan (OCP) EIR focused on potential geologic hazards within the Plan area. The Orcutt Community Plan analysis identified several *significant, but feasibly mitigated impacts* (Class II), including increased erosion, sedimentation on creeks, collapsible soils, potential fault rupture, seismic shaking, and unstable slope development constraints, septic constraints from clay-rich soils, and conflicts with future oil exploration activities.

The OCP EIR determined that the Western OCP area, including Key Site 21, is underlain by "Dune Sand" of the Orcutt Formation, sandy alluvial deposits characterized by severe erosion and collapsible soil hazards. The Graciosa Canyon/Orcutt Creek area is also clay-rich and therefore has an expansive soil hazard potential.

The following potentially significant impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact GEO-1: Development and increased run-off in the highly erosive soils of the Solomon foothills would create *potentially significant* impacts to Orcutt Creek and local drainages through substantial increases in erosion, possible collapse of new cut and fill slopes, and subsequent sedimentation associated with large scale grading and clearing on steep slopes with collapsible soils. In particular, the OCP EIR stated:

> "Blowing sand during development, sedimentation of Orcutt Creek and existing and proposed flood control retention basins, and the development of eroding (and unvegetated) artificial slopes are potential impacts associated with Key Site development in west Orcutt. The issue of possible collapsible soils would have to be addressed in the engineering of any development."

Impact GEO-2: Project grading and site preparation activities would potentially cause substantially increased erosion of sandy soils which would contribute to the County's PM10 air quality problem, as well as create a nuisance for surrounding land uses.

Impact GEO-3: Development of the Community Plan would be subject to *potentially significant* seismic hazards through earth shaking.

Impact GEO-4: The presence of clay-rich soils in areas not served by sewer service could result in *potentially significant* impacts to septic disposal systems.

Impact GEO-5: Buildout of the OCP could have a community-wide impact of erosion and downstream sedimentation that was determined *significant and unavoidable*.

Orcutt Community Plan Development Standards for geology, topography, and soils include DevStds GEO-O-1.1, GEO-O-1.2, and GEO-O-1.3, which require identification and avoidance of active and potentially active faults. DevStds GEO-O-2.2 through GEO-O-2.6 require the use of erosion control and slope stabilization measures. DevStds GEO-O-2.1 and GEO-O-3 include requirements for large-scale grading.

3.7.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots are generally consistent with the projected development OCP Key Site 21. The 2017 Neighborhoods Specific Plan includes refinements to the approved conceptual Key Site 21 buildout:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- Grading for the tracts including roadways and building pads is estimated to be approximately 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The grading is designated to result in a balance of cut and fill between the two neighborhoods. No grading would be imported and/or exported.

Regulatory Setting Changes

While the *County of Santa Barbara Thresholds Manual*, which includes *Geologic Constraints Guidelines*, has been updated since the 1997 EIR was prepared, no changes have been made to the significance criteria for assessing geologic impacts. Additionally, no other changes to the County of Santa Barbara Comprehensive Plan or Land Use and Development Code have occurred since 1997 that affect the analysis of geologic impacts. As such, the regulatory setting remains generally the same as the regulatory setting in 1997. As in 1997, geologic impacts would be considered significant if:

GEO-1: The project site or any part of the project is located on land having substantial geologic constraints, as determined by P&D or PWD. Areas constrained by geology include parcels located near active or potentially active faults and property underlain by rock types associated with collapsible/collapsible soils or susceptible to landslides or severe erosion. "Special Problem" areas designated by the Board of Supervisors have been established based on geologic constraints, flood hazards, and other physical limitations to development.

GEO-2: The project results in potentially hazardous geologic conditions, such as construction of cut slopes exceeding a gradient of 1.5 to 1 (horizontal to vertical) or in excess of 15 feet in height, as measured from the lowest finish grade.

GEO-3: The project is located on slopes exceeding 20 percent grade.

The OCP EIR stated that: "mitigation measures may reduce impacts to a less than significant level. These measures would include minor project redesign and engineering steps recommended by licensed geologists and engineers subsequent to detailed investigation of the site."

The OCP EIR determined that most geologic hazards were *significant but feasibly mitigated* (Class II). Potential impacts associated with erosion, slope collapse and subsequent downstream sedimentation because of the highly erodible and collapsible nature of many of the soil types in the foothills were considered *significant and unavoidable* (Class I).

Existing Setting

A site-specific geological investigation was performed in support of the proposed Specific Plan by Bradley Bucher, PE, and Jeffrey Pfost, CEG, that included a literature review of geotechnical and geologic data, a field study including ten 6-inch diameter exploratory borings (four throughout the Willow Creek Neighborhood, and six within the Hidden Valley Neighborhood) to a 25-foot depth to develop sub-surface Project site conditions; laboratory testing of soil samples, a review of regional faulting and seismicity hazards, landslide potential, surface water and groundwater conditions, and liquefaction hazards, and recommendations for site preparation and grading, as well as geotechnical design criteria for foundations (GeoSolutions Inc., 2016). Their findings are incorporated by reference below.

The Neighborhoods Specific Plan lies along the lower slopes and base of the east-west trending Casmalia Hills. The topography consists of gentle slopes that reach 420 feet in elevation along the southern perimeter of the site, and dropping to 220 feet elevation at the northwest concern of the property. Soils on the southerly slopes are sandy silts at the surface and silty sands below. The flatter northerly soils are surficial sandy silt and silty sands below. They are considered to have a severe erosion hazard if not covered with vegetation or hardscape. A quantitative static stability assessment of slopes considered within the Willow Creek and Hidden Valley Neighborhoods determined that existing topography and soils reflect stable conditions, including when dynamic loading conditions reflecting the influence of seismic events are considered.

No evidence of landslides was identified during review of historic aerial photographs. The closest known Holocene-era (less than 12,000 years ago) active earthquake fault is the Los Alamos Fault, located approximately 13 miles of the Specific Plan area. The Project site is outside an Earthquake Fault Zone as defined by the Alquist-Priolo Act of 1972. The presence of sandy and clay soils and their relative density, the depth to groundwater of over 13 feet, and expected ground acceleration caused by the projected maximum earthquake would result in a low potential for seismic liquefaction.

3.7.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact GEO-1: ***An earthquake on a nearby or distant fault could cause substantial ground shaking, liquefaction, and/or landslides at the project site.***

1997 Impact Analysis

The OCP EIR identified *potentially significant* (Class II) geological hazards in the OCP Area associated with ground shaking and related effects from earthquakes such as liquefaction and landslides. The Orcutt/Casmalia Fault was one fault identified in the southeast OCP Area. This fault is classified as potentially active fault and is consider a ground rupture hazard. This fault does not cross Key Site 21. Additionally, the OCP determined that liquefaction was not anticipated to occur within the OPA. The potential for substantial landslides to occur was also very low. Most of the OPA is underlain by ancient dune sands deposits and has generally gentle slopes that would not result in substantial landslide potential.

Mitigation Measures and Residual Impact

The following are existing policies that would serve to mitigate these impacts:

- All structures shall be built to Zone VI standards of the County of Santa Barbara Uniform Building Code.

The OCP FEIR also identified measures that would minimize potential seismic geological hazards:

GEO-1.1a Development on expansive or liquefiable soils shall be prohibited.

GEO 1.1b Construction of buildings of all types within 50 feet of faults shall be avoided.

The residual impact on seismic hazards after mitigation would be *significant, but feasibly mitigated* (Class II).

2018 Impact Analysis

The Neighborhoods Specific Plan takes into all existing regulations involving structural design and all OCP mitigation measures for seismic hazards into account. Although still susceptible to ground shaking, the Specific Plan area is located more than 13 miles away from the potentially active Los Alamos fault. The Project site is not underlain by soils with severe potential for expansion or liquefaction. All structures would be subject to the design standards of the Uniform Building Code. These regulations and mitigation measures would reduce the potential hazards associated with ground shaking, and related effects such as liquefaction and landslides. The potential impact on seismic hazards would therefore be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As the potential impact on seismic hazards would be less than significant, no mitigation is required. The residual impact related to geological hazards would be *adverse, but less than significant* (Class III).

Impact GEO-1b: ***The proposed Project site does not contain collapsible soils that could cause structural damage to proposed structures.***

1997 Impact Analysis

The West Orcutt Sub-Area and Key Site 21 is underlain by Dune Sand, Orcutt Formation, and sandy alluvium. These soils are generally low density sandy soils and would potentially be subject to collapse under certain load and moisture conditions. The OCP EIR identified collapsible soils to be an *adverse, but less than significant* (Class III) geological hazard in this area as it would be effectively addressed through standard site-specific engineering measures involving site preparation, grading, and building design.

Mitigation Measures and Residual Impact

As the issue of possible collapsible soils would be addressed in the engineering of any development through standard grading and building engineering design, this geological hazard would be *adverse, but less than significant* (Class III).

2018 Impact Analysis

Potential collapsible soil impacts associated with buildout of the Neighborhoods Specific Plan were addressed in the Slope Stability analysis undertaken by GeoSolutions, Inc. (2016). This analysis determined that stable slope conditions exist within both proposed Specific Plan neighborhoods, and that the potential hazard caused by collapsible soils would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on geology and soils would be less than significant, no mitigation measures would be required. Standard building foundation and road design regulations and strategies would be implemented through Public Works Department plan review. The residual impact related to geological hazards would be *adverse, but less than significant* (Class III).

Impact GEO-1c: ***Project construction grading would potentially cause substantially increased erosion and sedimentation.***

1997 Impact Analysis

The OCP EIR identified *potentially significant but feasibly mitigated impacts* (Class II) associated with blowing sand, increased erosion, and sedimentation on creeks and local drainages due to development on steep slopes with highly erosive soils during construction grading.

Mitigation Measures and Residual Impact

The following measures were identified in the OCP to address potentially significant impacts associated with erosion and sedimentation during construction:

GEO-1c.1 Silt fencing, straw bales, sand bags, sediment basins, etc., shall be used in conjunction with other methods to prevent erosion on slopes and siltation of stream channels. In foothill areas, cut and fill slopes shall be planted with slope-stabilizing vegetation -- native only within open space corridors -- including oak trees and appropriate shrubs and irrigated until established.

GEO-1c.2 Development in areas of high erosion potential shall be sited and designed to minimize increased erosion and may be required to have a site-specific evaluation of erosion-control measures. Project approval shall be conditioned to ensure that erosion will be reduced to acceptable levels.

GEO-1c.3 Landscape plans shall be required for all new development in areas of sandy soils to ensure revegetation of graded areas. All landscape plans shall be reviewed by the County BAR; landscape securities (bonds) shall be required unless expressly waived by P&D.

GEO-1c.4 Erosion control measures, such as plantings or hard surfaces, shall be incorporated into the drainage plan for all projects as required by the Flood Control District and P&D.

GEO-1c.5 All surface water runoff shall be culverted and diverted to avoid exposed slopes and directed to the nearest natural drainage channel across an energy-dissipating outfall.

Measures GEO-1c.1 through 1c.5 would minimize potential erosion induced siltation of creek and other drainages to a significant but feasibly mitigated level (Class II). However, due to the highly erodible and collapsible nature of many of the soil types in the OCP area, potential community-wide impacts associated with erosion, slope collapse, and sedimentation were considered *significant and unavoidable* (Class I).

2018 Impact Analysis

Buildout of the Neighborhoods Specific Plan grading for the residential tracts including roadways and building pads is estimated to be 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The grading would be balanced between the two neighborhoods. This short-term activity would result in temporary exposure of ground surfaces throughout the Project site. Most of the project site is underlay by Tierra Loam soil of 5 to 30 percent slopes, and is severely eroded (NRCS, 2016). Such soils have low permeability, making surface runoff rapid and erosion hazard high.

Proposed grading is estimated to occur over a 7-month period, presently projected between February 2020 and September 2020. Given that a portion of this activity would likely occur outside of the dry season of the year (April 1st to September 30th), a standard erosion-control plan would be required that incorporates Santa Barbara County Best Management Practices to address and minimize sedimentation. Erosion of temporarily exposed soils could result in erosion-induced siltation of

drainages on the project site. Impervious surfaces installed in the early stages of construction could concentrate water flow, also potentially leading to increased erosion and siltation of drainages.

The Neighborhoods Specific Plan incorporates OCP EIR mitigation erosion control Best Management Practices including the following:

- Utilize landform grading techniques to blend constructed slopes to the natural landform in a gradual naturalistic manner.

- Slope banks needed to create a road or lot building area that extends beyond the road areas or residential lots shall have as gentle as possible slope and shall be revegetated to transition and match the natural open space character.

- Any temporary or permanent ground disturbance on slopes shall be treated with erosion control measures within 30 days of disturbance.

- Any permanent grading shall be planted within four weeks with permanent planting appropriate to the landscape zone the slope occurs in, along with any appropriate irrigation and / or erosion fabric, seed or other treatment, to protect the slope from erosion.

- Graded areas shall be revegetated within four weeks of grading activities with deep rooted, native, drought-tolerant species to minimize slope failure and erosion potential. If necessary, as determined by Planning and Development (P&D), irrigation shall be provided. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

- During the rainy season (October 1st through March 30th), slopes shall be treated for erosion control immediately consistent with County of Santa Barbara Public Works Standards.

- Methods such as retention basins, drainage diversion structures, spot grading, silt fencing/coordinated sediment trapping, straw bales, and sand bags, etc. shall be used to prevent erosion on slopes and siltation during grading and construction activities.

- After construction of tract improvements and until construction of individual homes, exposed areas shall be stabilized to prevent wind and water erosion, using methods approved by Planning and Development Grading Division and Air Pollution Control District.

- Cut and fill benches shall be constructed at regular intervals.

- Excavation and grading shall be limited to the dry season of the year (i.e., April 1st to September 30th) unless a Planning and Development Building and Safety approved erosion control plan is in place and all measures therein are in effect.

Given the implementation of these Specific Plan design standards and Santa Barbara County erosion control plan BMPs, the impacts associated with the short-term exposure of graded soils and potential for sedimentation into drainages resulting from buildout of the Neighborhoods Specific Plan be *adverse but less than significant* (Class III), and less than those associated with OCP Full

Buildout.

Mitigation Measures and Residual Impact

As impacts on geology and soils would be less than significant, no additional mitigation is required. The residual impact on geology and soils would be *adverse, but less than significant* (Class III).

Impact GEO-1d: *OCP Plan long-term buildout would potentially result in erosion, slope collapse, and subsequent downstream sedimentation in areas of highly erodible and collapsible soils in foothill environments.*

1997 Impact Analysis

In areas of highly erosive and collapsible soils, the OCP EIR characterized long-term impacts resulting from development on these hillside slopes as *significant and unavoidable* (Class I).

2018 Impact Analysis

The GeoSolutions Inc. site-specific investigations (2016) indicated that primary geotechnical concerns included the presence of loose surface soils and debris, deep ravines with vertical slopes, and the need to fill topographic depressions. These characteristics represent *potentially significant impacts* on geology and soils from potential long-term erosive runoff and sedimentation impacting the unnamed drainages feeding into Orcutt Creek offsite to the north.

The Neighborhoods Specific Plan also proposes construction of a public trail in the easternmost side of the property in the Hidden Canyon neighborhood. The trail would be approximately 1,500 feet long. Ground disturbance during trail maintenance activities would result in potential short-term erosion and sedimentation, resulting in potentially significant short-term impacts. However, such trail improvements would prevent long-term erosion, resulting in beneficial long term impacts.

Retaining walls outside the residential footprint would be limited to 4-feet high, indicating landform modifications for creating building envelopes would not result in steep elevation changes.

Mitigation Measures and Residual Impact

The following standard measures were identified in the GeoSolutions Inc (2016) study:

GEO 1d.1 Fill depths exceeding 4-feet deep shall be compacted to a minimum relative density of 95 percent (ASTM D1557-07).

GEO 1d.2 Within any fill areas constructed on slopes greater than 10:1 (horizontal:vertical), benches shall be cut every 4 feet as fill is placed. Each bench shall be a minimum of 10-feet wide, with a minimum of 2 percent slope gradient. The toe of all fill slopes constructed on slopes greater than 5:1 shall be keyed a minimum of 24-inches into underlying dense material. Subdrains shall be constructed in the keyway and benches as required.

These standard geotechnical strategies would ensure that the residual impact associated long-term sedimentation resulting from proposed filling of topographic depressions within the Specific Plan Area would be reduced to *significant but feasibly mitigated* (Class II), and less than those associated with OCP Full Buildout.

Impact GEO-2: *The project would not result in potentially unstable slope conditions.*

1997 Impact Analysis

The OCP EIR identified *potentially significant impacts* (Class II) development on potentially unstable slope conditions.

Mitigation and Residual Impact

The following measures were identified in the OCP to address potentially significant impacts associated with erosion and sedimentation:

GEO-2.1 The County shall apply the Orcutt Open Space Overlay on slopes of 20 percent or greater.

GEO-2.2 Ground disturbances and development on slopes of 20 percent or greater shall be avoided, unless no geological hazards are present and such avoidance would prohibit development, wherein the portion of the site which exhibits the lowest slope shall be utilized. All new development shall be sited in close proximity to the nearest existing access road to minimize the need for new roads/driveways, where such roads/driveways would require substantial grading.

GEO 2.3 New structures shall be prohibited in areas of unstable or highly erosive soils on slopes greater than 20 percent unless an evaluation by a qualified soils engineer or engineering geologist establishes that the proposed project will not result in unstable slopes or severe erosion.

GEO 2.4 No development shall be permitted on slopes 30 percent and greater and development on slopes 20 to 30 percent shall be minimized.

2018 Impact Analysis

Potential collapsible soil impacts associated with buildout of the Neighborhoods Specific Plan were addressed in the Slope Stability analysis undertaken by GeoSolutions, Inc. (2016). This analysis determined that stable slope conditions exist within both proposed Specific Plan neighborhoods, and that the potential hazard caused by unstable soils would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on geology and soils would be less than significant, no mitigation measures would be required. Standard building foundation and road design regulations and strategies would be implemented through Public Works Department plan review. These standard geotechnical strategies would ensure that the residual impact associated long-term sedimentation resulting from proposed filling of topographic depressions within the Specific Plan Area would be reduced to *significant, but feasibly mitigated* (Class II), and less than those associated with OCP Full Buildout.

Impact GEO-3: ***Proposed grading would occur in limited areas of slopes exceeding 20 percent.***

1997 Impact Analysis

Potential impacts associated with erosion, slope collapse and subsequent downstream sedimentation because of the highly erodible and collapsible nature of many of the soil types in the foothills was considered to be *significant and unavoidable* (Class I).

Mitigation Measures and Residual Impact

The following measures were identified in the OCP to address potentially significant impacts associated with erosion and sedimentation:

GEO-2.2 Ground disturbances and development on slopes of 20 percent or greater shall be avoided, unless no geological hazards are present and such avoidance would prohibit development, wherein the portion of the site which exhibits the lowest slope shall be utilized. All new development shall be sited in close proximity to the nearest existing access road to minimize the need for new roads/driveways, where such roads/driveways would require substantial grading.

GEO 2.3 New structures shall be prohibited in areas of unstable or highly erosive soils on slopes greater than 20 percent unless an evaluation by a qualified soils engineer or engineering geologist establishes that the proposed project will not result in unstable slopes or severe erosion.

GEO 2.4 No development shall be permitted on slopes 30 percent and greater and development on slopes 20 to 30 percent shall be minimized.

2018 Impact Analysis

As discussed in Section 3.7.2, the proposed Project site topography is characterized by gentle slopes that reach 420 feet in elevation along the southern perimeter of the site, dropping to 220 feet elevation at the northwest concern of the property. Slope maps depicting existing topography with the proposed residential buildouts projected indicate that limited areas of grading characterized by

the side slopes of existing drainage gullies would be filled to achieve level residential pads and internal access roads (Bethel Engineering 2017). A summary of proposed residential lots and internal road segments located on slopes over 20 percent is presented below:

Table 3.7-1. Grading on Slopes Over 20 and 30 Percent

Neighborhood	Residential Lots	Road Segments
Willow Creek		
Over 20 Percent	24	7
Over 30 Percent	11	4
Hidden Valley		
Over 20 Percent	8	4[a]
Over 30 Percent	2	2

a. Includes recreational trail corridor

The analysis above illustrates that limited grading on slopes over 20 percent would occur on 22 percent of the residential lots (32 of 146), and 9 percent (13 of 146) over 30 percent. The linear extent of roadways on slopes exceeding 20 percent and 30 percent would be minimal, and is shown below in Table 3.7-2.

Table 3.7-2. Percentage of Road Grading on Slopes Over 20 and 30 Percent

Neighborhood	Road Length (feet)	Percent
Willow Creek		
Total	8,317	-
Over 20 Percent	514	6.1
Over 30 Percent	229	2.7
Hidden Valley		
Total	7,817	-
Over 20 Percent	168	2.1
Over 30 Percent	145	1.9

The majority of proposed lots partially encroaching on slopes of over 20 and 30 percent slopes would occur along a minor ravine draining the northwestern portion of APN 113-250-017 as identified on Key Site 21, in the Willow Creek Neighborhood along existing gentle topography associated with the Solomon Hills (see attached). An oblong portion of slopes over 30 percent is identified on Key Site 21 on the east side of the drainage. Fourteen residential Willow Creek Neighborhood lots and three internal roadways are located on either side of this minor ravine, including all 11 lots encroaching within slopes exceeding 30 percent.

The Neighborhoods Specific Plan also proposes construction of a public trail in the easternmost side of the property in the Hidden Canyon neighborhood. The trail would be approximately 1,500 feet long and would traverse slopes over 20 percent. Ground disturbance during trail maintenance activities would result in potential short-term erosion and sedimentation, resulting in potentially significant short-term impacts. However, such trail improvements would prevent long-term erosion, resulting in beneficial long term impacts.

As stated previously, development on slopes and soils as determined by the Slope Stability analysis undertaken by GeoSolutions, Inc. (2016), including the lots and roadways on over 20 percent slopes, would result in *adverse, but less than significant* (Class III) impacts on geology and soils. Development on slopes over 30 percent would exceed impact threshold **Geo 3,** and would be *significant and unavoidable* (Class I).

Mitigation Measures and Residual Impact

No feasible mitigation measures or engineering exist to avoid development on slopes of over 30 percent. Though potential hazards of slope failure and erosion would be reduced to less than significant levels with standard engineering strategies identified in the GeoSolutions, Inc. (2016) report, residual impacts resulting from grading on these slopes would be *significant and unavoidable* (Class I).

3.7.4 Cumulative Impacts

1997 Impact Analysis

Potentially significant cumulative impacts were identified in association with buildout of the Orcutt Community Plan, due to the potential for seismically induced settlement, collapsible/collapsible soils, unstable slope soils, and particularly from siltation of drainages and creeks. Approved probable future projects that could result in accelerated erosion and sedimentation impacts included those projects located in proximity to Orcutt Creek, Pine Canyon Creek, Graciosa Creek, or other unnamed local drainages.. Such cumulative impacts were considered *significant and unavoidable* (Class I) on a community-wide scale. The OCP did not determine Key Site 21's project-specific or cumulative contribution to erosion and siltation.

2018 Impact Analysis

The proposed Project site includes three unnamed local drainages. However, the Specific Plan's contribution to cumulative impacts would not be considered substantial, because: 1) the potential grading activities for many of the OCP related projects would be limited in scope and duration; 2) construction of these related projects within the OCP would not likely occur concurrently; and 3) Project-specific mitigation measures including standard County of Santa Barbara Best Management Practice erosion control measures would feasibly minimize erosion induced sedimentation. In addition, nearby related projects would also be subject to environmental review and appropriate mitigations established for each related project prior to development. However, given that the Project would encroach in a limited manner within one ravine with slopes of greater than 30 percent, the contribution to cumulative impacts on geology and soils would be considered *significant and unavoidable* (Class I). The overall cumulative impact on geology and soils would be similar to the OCP FEIR.

References

County of Santa Barbara. 1997. *Key Site 21, Old World*. Orcutt Community Plan Final EIR, Volume 2, Figure KS21-1.

GeoSolutions, Inc. 2016. *Soils Engineering Report and Engineering Geology Investigation. The Estates at Rancho Maria, 1950 Highway 1, Orcutt Area, Santa Barbara County, CA*. June 7.

Bethel Engineering. 2017. *Existing Slope Maps for Willow Creek and Hidden Canyon*.

3.8 LAND USE

The following Land Use section presents an analysis of the proposed Neighborhoods Specific Plan consistency with Orcutt Community Plan (OCP) policies and design standards. The analysis is presented consistent with the organization of environmental issue areas in this Environmental Documentation packages. Policies and Development Standards are indicated in *italics*, followed by the proposed Project's consistency discussion in regular font.

Comprehensive Plan Land Use Designation and Zoning

The site is zoned Planned Residential Development (PRD), maximum 150 units. The Planned Development designation is intended for large areas within urban boundaries which are appropriate for residential development but need to be planned as a unit due to site constraints. The purpose of the designation is to avoid piecemeal development by requiring coordinated, long- range planning and provide flexibility in siting, design and mix of housing types while protecting resources and providing other public benefits. The purpose of the PRD zone district is to ensure comprehensively planned development of large acreages within urban areas intended for residential use. The intent of the zone is to: promote flexibility and innovative design and preserve significant natural, scenic and cultural resources of a site; encourage clustering of structures to preserve a maximum amount of open space; allow a diversity of housing types; and provide recreational opportunities for use by both the residents of the site and the public.

Land Use Element- Land Use Development Policies

Land Use Development Policy #2: *The densities specified in the Land Use Plan are maximums and may be reduced if it is determined that such reduction is warranted by conditions specifically applicable to a site, such as topography, geologic or flood hazards, habitat areas, or steep slopes. However, density may be increased under programs of the Housing Element.*

Land Use Development Policy #3: *No urban development shall be permitted beyond boundaries of land designated for urban uses except in neighborhoods in rural areas.*

Land Use Policy #4: *Prior to issuance of a use permit, the County shall make the finding, based on information provided by environmental documents, staff analysis, and the applicant, that adequate public and private services and resources (i.e., water, sewer, roads, etc.) are available to serve the proposed development. The applicant shall assume full responsibility for costs incurred in service connections or improvements that are required as a result of the proposed Project. Lack of available public or private services or resources shall be grounds for denial of the project or reduction in the density otherwise indicated in the land use plan.*

Land Use Development Policy #5**:** *Within designated urban areas, new development other than that for agricultural purposes shall be serviced by the appropriate public sewer and water district or an existing mutual water company, if such service is available.*

Santa Maria Area Goals

Land Use

Leapfrog development should be discouraged.

Orcutt Community Plan – Land Use

Policy LU-O-1: *All existing Countywide Comprehensive Plan Elements and policies apply to the Orcutt Planning Area in addition to those specific policies and action items identified below.*

Policy LU-O-2: *The Development Standards contained within this Plan shall be utilized to implement the policies of the Plan. Each of these standards shall be applied to the project under review unless the standard would be inapplicable, ineffective or preclude reasonable development and/or other equivalent standards have been developed as part of project approval which implement the goals and policies of this plan.*

Policy LU-O-3: *The County shall require that adequate resources and service capacity are available to accommodate the growth identified within this Plan.*

Policy LU-O-5: *To improve fiscal balance in both the development, operations, and maintenance of public infrastructure, the County shall pursue establishment of appropriate funding mechanisms to ensure that development pays its "fair share" of public infrastructure costs.*

Policy LU-O-8: *In order to preserve the semi-rural character of Orcutt, protect natural resources, and avoid development in hazardous areas, the County shall provide for large useable areas of (public or private) open space within the community. Appropriate planning tools should be explored and adopted which provide for the clustering or relocation of development from hazardous, environmentally sensitive or visually prominent areas, or other sites which are deemed unsuitable for development, to areas appropriate for development.*

ANALYSIS: *CONSISTENT*. The permitted Project base density is 150 units and the Specific Plan proposes to develop 146 residential units with single family. Approximately 126.5 acres (66%) of the Project area would be retained as public and private open space/recreation area, including a hiking trail.

The Project site is located outside the urban limit line of the OCP; however, development would occur in an existing developed rural neighborhood as designated by the OCP. In addition, the Specific Plan area has been identified for future urban development by the OCP and would be adjacent to potential urban development on Key Site 22 to the north. Buildout of the 146 units would occur within the development areas as identified in the OCP and would minimize development on steep slopes and within significant biological habitat, while avoiding other significant resources as identified in the OCP. Leap frog development would not occur because the proposed development envelope conforms to the OCP Key Site 21 development footprint.

Adequate fire and police protection, public school capacity, landfill capacity, and wastewater service would be available for the proposed Project, and impacts related to these services would be minimized to the maximum extent by implementing feasible mitigation. Sewage disposal would be provided by the Laguna County Sanitation District. The Project's gross and net water demands, as well as the facilities necessary to distribute water to the Project site, were evaluated. The use of groundwater to serve the development under the project is consistent with the Stipulation of the Santa Maria Groundwater Basin Litigation and meets the definition of "supplemental" set forth in WATER-O-2. Thus, the proposed Project could be served by water from the Santa Maria Groundwater Basin.

The Project applicant would be required to pay the Project's fair share of fees for parks, fire and police protection services, flood control, roads, and water in accordance with the County's development impact fee schedule. Furthermore, adequate landfill capacity is available to serve the project, although the Project's specific and

cumulative contribution to the landfill reaching its capacity has been identified as significant. Implementation of the proposed Project would result in less than significant project-specific and cumulative impacts to area roadways and intersections, and adequate roads are available to serve the proposed development.

Adherence to the following mitigation measures would ensure that the developer pays its "fair share" of public infrastructure and would ensure policy consistency: PS-3.1 requiring that the applicant pay trunk and/or feeder line fees to the Laguna County Sanitation District; PS-4.1 and PS-4.2 requiring payment to the Orcutt Union School District and Santa Maria Joint Union High School District of statutory fees and mitigation payments; and PS-5.1 requiring a development fee be paid based on Public Infrastructure Financing Program for the Orcutt Community Plan to the City of Santa Maria for library services.

Orcutt Community Plan – Residential

Policy LUR-O-1: *Consistent with the Housing Element, the County shall encourage the provision of a mix of affordable units on parcels within the Orcutt Planning Area.*

Policy LUR-O-2: *Future growth and development shall occur in a manner which minimizes construction related impacts on the community*.

Policy LUR-O-6: *In order to provide community cohesiveness, new neighborhoods should be designed to provide circulation, pedestrian, bicycle and public transportation linkage to existing neighborhoods, schools, parks, and commercial areas.*

Policy LUR-O-7: *County planning and maintenance efforts shall support development of safe, clean residential areas.*

ANALYSIS: ***CONSISTENT.*** Implementation of standard dust and emissions control measures required by the SBCAPCD would ensure that construction-related air quality impacts are less than significant. Other construction-related impacts would be reduced to less than significant levels with implementation of NOI-3.1.

The California Department of Housing and Community Development (State HCD) periodically determines the housing needs for the entire county to accommodate projected jobs and population growth. The Santa Barbara County Association of Governments (SBCAG) then allocates a share of the housing needs to each city (incorporated areas) and the county (unincorporated areas) as part of a Regional Housing Needs Allocation (RHNA). The County's RHNA for the 2014-2022 RHNA projection period is 661 units. To plan for an adequate housing supply for all economic segments of the population, the RHNA is separated into four broad income categories: 159 extremely low/very low-income units, 106 low-income units, 112 moderate-income units, and 284 above moderate- income units. Appendix B of the 2015-2023 Housing Element includes an inventory of housing sites that are zoned and suitable to accommodate the RHNA within all income categories.

Hidden Canyon and Willow Creek neighborhoods are part of the land inventory with a potential housing production of 146 above-moderate income units. According to County HCD staff, the median sale price of all housing units within the Santa Maria HMA over the past year was affordable to moderate income households. Therefore, moderate and workforce housing (at both the 120% and 150% median income levels) requirements have been reduced to zero in this Housing Market Area at the current time because housing at this income level is currently available in the Santa Maria Housing Market Area (HMA). As the Project would provide above moderate income units, the project would be potentially consistent with provisions in the Housing Element and State law regarding

the County's RHNA. Payment of standard County in-lieu housing fees would contribute to the construction of affordable units throughout the Santa Maria HMA and would meet the Project's affordable housing requirement (RHNA).

The Project proposes to complete development of 146 residential units with larger single-family homes in the Hidden Canyon neighborhood and higher density units in Willow Creek neighborhood. Future residents of the proposed Project would have access to existing circulation, pedestrian, and bicycle linkages. The development would connect with the area circulation network, and thus, would provide access to needed services such as schools, parks, and commercial areas. The Neighborhoods Homeowners Association would maintain private residential lots and common recreational and open space areas. In addition, the Specific Plan includes design standards for circulation, pedestrian pathways, and bikeways to link the project to existing resources consistent with the OCP, ensuring ***consistency*** with these policies.

Orcutt Community Plan – Agricultural

Policy LUA-O-2: *Development in Orcutt shall be compatible with adjacent or nearby agricultural lands.*

DevStd LUA-O-2.1: *Fencing, berming and/or landscaping shall be installed along property lines or across ends of street stubs contiguous to agricultural and/or permitted oil operations unless a waiver to the satisfaction of Planning & Development is obtained from the adjacent agriculturist(s) and property owner(s), and/or operators. Fencing, berming and/or landscaping shall be designed, installed, and maintained to protect agricultural land and permitted oil operations from effects of residential development.*

DevStd LUA-O-2.2: *Consistent with the County's adopted Right to Farm Ordinance, a buyer beware notification shall be recorded on a separate information sheet with the final tract and/or parcel maps of properties within 1,000 feet of agriculturally zoned land. The notification shall inform the buyer that: The adjacent property is zoned for agriculture and is located in an area that has been planned for agricultural uses, including permitted oil development, and that any inconvenience or discomfort from properly conducted agricultural operations, including permitted oil development, shall be allowed consistent with the intent of the Right to Farm Ordinance. For further information, contact Santa Barbara County Planning and Development.*

DevStd LUA-O-2.3: *All new urban and EDRN development which borders agriculturally designated lands shall include a minimum 100-foot buffer between structures and agricultural land and shall include appropriate landscaping, including but not limited to the planting of hedges and/or windrows with a sufficient density of trees and shrubs to reduce noise, odor, dust or chemical effects associated with the agricultural operations. This buffer is a minimum adjacent to lighter agricultural uses (such as grazing) and should be adjusted upward if the adjacent agricultural operation is considered more intensive (such as strawberry cultivation or oil development)*.

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-11: *The development should minimize visual impacts to Highway 1 and the surrounding rural area through the use of low-profile design, earthtone colors and vegetated setbacks. The Specific Plan shall be reviewed for compatibility with adjoining agricultural uses.*

ANALYSIS: ***CONSISTENT.*** Building setbacks, landscaping, and open space are proposed along the Specific Plan area boundary adjoining agricultural land to the west, east and south, and fencing would be installed along property lines. With regards to Policy LUA-O-2, the Hidden Canyon Neighborhood Lots 3 ,5, 6, and 7 adjacent to

existing row crops to the east incorporate a 200-foot setback from the Specific Plan boundary. Remaining Hidden Canyon Neighborhood lots to the south adjacent to grazing areas to the east incorporate a 100-foot setback from the Specific Plan boundary. The most southerly Hidden Canyon Neighborhood residential Lot 51 is 275 feet north of the southern Specific Plan boundary. Willow Creek Neighborhood lots incorporate a minimum 370-foot setback from the western Specific Plan boundary (on Lot 89) and agricultural row crops and grazing areas to the west, and a minimum 285-foot setback from the southerly Specific Plan boundary (on Lot 68). The Willow Creek Neighborhood subterranean water tank would be 145 feet north of the southerly Specific Plan boundary. The only proposed improvements within 100 feet of the Specific Plan property boundary would be Hidden Canyon Neighborhood subterranean water tank, 50- feet from the eastern property line, and the dedicated OCP PRT RM-1 trail easement extending along the length of the eastern property line. These encroachments would be consistent with OCP DevStd LUA-O-2.3. Therefore, the proposed Project is ***consistent*** with these policy and development standards.

Seismic Safety and Safety Element

Policy #1: *Avoid construction of buildings of all types and most structures on or across historically active or active faults. The appropriate setback distance from the trace of the fault would be variable, depending on the conditions, but normally would be a minimum of at least fifty feet on either side of the sheared zone.*

Policy #3: *Because active fault zones are not suitable for construction sites, they should be developed for non-structural uses or left in an undeveloped natural state. In view of the normally narrow width of the zone (100 feet minimum) in which building should be avoided, the zone would be a suitable location for trails or narrow green belts, possibly adjacent to residential or commercial areas.*

Environmental Resources Management Element (ERME)

Category A: *Urbanization should be prohibited on lands with Geologic Problems Index V, in stream channels with flood hazard or recharging groundwater, floodway areas, on slopes 30 percent and greater, and archaeological sites.*

Category B: *Urbanization should be prohibited except in a relatively few special instances on lands with Geologic Problems Index IV, 100-year flood plain (except west of the City of Lompoc), slopes 20 to 30 percent, lands highly suitable for expansion of cultivated agriculture, and prime examples of common ecological communities, and significant habitats.*

Category C: *Urbanization could be permitted only in appropriate instances, subject to project plan review and imposition of specific conditions to protect against hazards and to preserve the integrity of the land and environment on lands 150 feet on either side of active and historically active earthquake fault zone, 150 feet on either side of potentially active earthquake fault zones, areas with unknown flood hazard, areas of significant biological value, areas of high scenic value, scenic corridors, open space suitable for outdoor recreation.*

Land Use Element – Hillside and Watershed Protection and Streams and Creeks Policies

Hillside and Watershed Protection Policy #1**:** *Plans for development shall minimize cut and fill operations. Plans requiring excessive cutting and filling may be denied if it is determined that the development could be carried out with less alteration of the natural terrain.*

Hillside and Watershed Protection Policy #2: *All development shall be designed to fit the site topography, soils, geology, hydrology, and any other existing conditions and be oriented so that grading and other site preparation is kept to an absolute minimum. Natural features, landforms, and native vegetation, such as trees, shall be preserved to the maximum extent feasible. Areas of the site which are not suited to development because of known soil, geologic, flood, erosion or other hazards shall remain in open space.*

Hillside and Watershed Protection Policy #3: *For necessary grading operations on hillsides, the smallest practical area of land shall be exposed at any one time during development, and the length of exposure shall be kept to the shortest practicable amount of time. The clearing of land should be avoided during the winter rainy season and all measures for removing sediments and stabilizing slopes should be in place before the beginning of the rainy season.*

Hillside and Watershed Protection Policy #4: *Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the Project site in conjunction with the initial grading operations and maintained through the development process to remove sediment from runoff waters. All sediment shall be retained on-site unless removed to an appropriate dumping location.*

Hillside and Watershed Protection Policy #5: *Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized as rapidly as possible with planting of native grasses and shrubs, appropriate non-native plants, or with acceptable landscaping practices.*

Hillside and Watershed Policy #6: *Provisions shall be made to conduct surface water to storm drains or suitable watercourses to prevent erosion. Drainage devices shall be designed to accommodate increased runoff resulting from modified soil and surface conditions as a result of development. Water runoff shall be retained onsite whenever possible to facilitate groundwater recharge.*

Hillside and Watershed Policy #7: *Degradation of the water quality of groundwater basins, nearby streams, or wetlands shall not result from development of the site. Pollutants, such as chemicals, fuels, lubricants, raw sewage, and other harmful waste, shall not be discharged into or alongside coastal streams or wetlands either during or after construction.*

Streams and Creeks Policy #1: *All permitted construction and grading within stream corridors shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution.*

Orcutt Community Plan - Geology/Topography/Soils Policies

Policy GEO-O-1: *Development shall be sited to avoid geologically hazardous areas.*

DevStd GEO-O-1.1: *New construction shall be set back a minimum of 50 feet from all known active or potentially active faults which have been mapped.*

Policy GEO-O-2: *In areas of high erosion potential, development shall be sited and designed to minimize increased erosion.*

DevStd GEO-O-2.1: *Consistent with Hillside and Watershed Policy #1, excessive grading for creation or enhancement of views shall not be permitted. Where new roads and driveways would require substantial grading, development shall be sited close to existing access roads.*

DevStd GEO-O-2.2: *Development shall be prohibited on slopes greater than 30% unless this would prevent reasonable development of a property. In areas of unstable soils, highly erosive soils or on slopes between 20% and 30% development shall not be allowed, unless an evaluation by a qualified professional (e.g., soils engineer, geologist, etc.) establishes that the proposed Project will not result in unstable slopes or severe erosion or this would prevent reasonable development of a property.*

DevStd GEO-O-2.3: *To aid in erosion control, existing hillside topography, large stands of trees, and natural flood channels shall be preserved, unless this would prevent reasonable development of a property.*

DevStd GEO-O-2.4: *All surface water runoff shall be culverted and diverted to avoid erosion of exposed slopes and shall be directed to the nearest natural drainage channel. Where such measures are feasible and would not substantially increase erosion, vegetated earthen channels should be substituted for culverts. Cribwalls or other methods should only be used where necessary to retain slopes.*

DevStd GEO-O-2.5: *In foothill areas, cut and fill slopes shall be planted with slope-stabilizing plants. Only native species shall be planted within designated natural open space corridors, and shall be irrigated until the plants are established.*

DevStd GEO-O-2.6: *All landscape plans shall be reviewed by P&D to ensure revegetation of graded areas in areas of sandy soils. Landscape securities shall be required unless expressly waived by P&D.*
DevStd GEO-O-2.7: *The County shall consider allowing lots to be drained to the rear only where it can be demonstrated that such rear-draining will reduce overall grading associated with a project and will provide an equal level of flood control protection as standard front-draining design.*

Policy GEO-O-3: *No grading in excess of 50 cubic yards (combined cut and fill) shall be permitted within areas designated open space in the Orcutt Community Plan without an approved Grading Permit. This requirement applies to all grading activity (including activities otherwise exempted under County Grading Ordinance 3937, Sections 14-6 and 14-8). This requirement shall not apply to the emergency activities of a public agency, including but not limited to wildfire and/or flood control.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-8*: All development shall be sited to preserve the natural landforms of the site and minimize grading.*

ANALYSIS: ***CONSISTENT.*** No known active or potentially active faults are mapped within the Project site. Proposed residential lots and roadways are located to avoid areas of high erosion potential and known geologic hazards**.** The site is subject to seismic shaking and soil stability hazards. The Neighborhoods Specific Plan incorporates OCP EIR mitigation erosion control Best Management Practices for construction on slopes. The project soils engineer, has identified standard measures GeoSolutions Inc (2016) to ensure grading is accomplished in a manner to minimize grading and landform modification. Additional mitigation measures GEO-1.1c1 through -1.1c5 would reduce potential sedimentation during construction.

The proposed development is located within areas consisting of slopes of 5 to over 30 percent in the Hidden Canyon and Willow Creek neighborhoods. The vast majority of proposed development would occur on slopes less

than 20 percent. Limited grading on slopes over 20 percent would occur within portions of 22 percent of the residential lots (32 of 146), and within portions of 9 percent (13 of 146) of lots over 30 percent slopes. The linear extent of internal roadways on slopes exceeding 20 percent and 30 percent would be minimal, with 2.1 percent on slopes greater than 20 percent and 1.9 percent on slopes greater than 30 percent. These encroaches feasibly minimize development on greater than 20 percent. The majority of proposed lots partially encroaching on slopes of over 20 and 30 percent slopes would occur along a minor ravine draining the Willow Creek Neighborhood along existing gentle topography associated with the Solomon Hills. All major drainages within the Specific Plan Area are located in proposed Open Space areas and would be entirely preserved and avoided.

The Neighborhoods Specific Plan public trail along the Hidden Canyon Neighborhood eastern boundary would traverse slopes over 20 percent. However, the trail improvements would prevent long-term erosion, resulting in beneficial long-term impacts.

Buildout of the proposed Project would involve approximately 1,007,916 cubic yards of grading (532,626 cubic yards of cut, and 475,290 cubic yards of fill). The proposed grading has been sited and designed to avoid impacts to existing sensitive vegetation to the maximum extent feasible. Mitigation measures including onsite restoration for the removal of sensitive native vegetation would be applied to the project.

Approximately 97 acres of the Specific Plan area would be placed in undisturbed open space, preserving existing topography and vegetation. The proposed Specific Plan results in 72 additional acres of open space areas relative to the approved OCP Key Site 21, representing a 75 percent increase relative to the 190-acre Specific Plan area.

Grading would be limited to the dry season to the maximum extent, and erosion control measures would be implemented to reduce potential impacts during the rainy season. Grading plans indicate that drainage on individual lots would be feasibly directed away from structures and directed into retention basins in each neighborhood.

The proposed storm water desilting/retention basin system would ensure that storm water runoff does not exceed County standards and water quality impacts are minimized to a less than significant level. The proposed detention basin system would adequately control runoff, and thereby minimize erosion. The basin system would maintain post-project runoff equal to or less than pre- project (existing) conditions. In addition, the project would include the use of LID technologies, which would also contribute to minimizing sediment loads and other contaminants. Pollutants, such as chemicals, fuels, lubricants, raw sewage, and other harmful waste, would not be discharged into or alongside coastal streams or wetlands either during or after construction.

The project would include Best Management Practices such as the installation of oil/water separators and sediment traps. The project would result in the temporary removal of riparian habitat on the Project site, however, these areas would be restored at a 1:1 ratio, or greater, pursuant to the OSHMP provisions. Implementation of a monitoring program for restoration areas would increase the likelihood of reestablishing these habitats and ensure that the quality of the habitat is similar or better than the habitats that were disturbed. Therefore, the Project is ***consistent*** with these Policies and Development Standards.

Land Use Element – Streams and Creeks Policies

Policy #1: *All permitted construction and grading within stream corridors shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution.*

Land Use Element - Flood Hazard Area Policies

Flood Hazard Area Policy #1: *All development, including construction, excavation, and grading, except for flood control projects and non-structural agricultural uses, shall be prohibited in the floodway unless off-setting improvements in accordance with HUD regulations are provided. If the proposed development falls within the floodway fringe, development may be permitted, provided creek setback requirements are met and finish floor elevations are above the projected 100-year flood elevation, as specified in the Flood Plain Management Ordinance.*

Orcutt Community Plan - Flooding and Drainage Policies

Policy FLD-O-1: *Flood risks in the Orcutt planning area shall be minimized through appropriate design and land use controls.*

DevStd FLD-O-1.2: *No structures or other development (except for bridges, culverts and flood control requirements) shall be allowed within creek channels.*

DevStd FLD-O-1.3: *No development shall be permitted within the floodplain of Orcutt, Pine Canyon or Graciosa Creeks unless such development would either be necessary to:*

1. *Permit reasonable development of the site and would not lead to disturbance or removal of significant riparian/wetland vegetation; or*
2. *Accomplish a major public policy goal of the Orcutt Community Plan.*

DevStd FLD-O-1.4: *Residential units requiring raised finish floor elevations in areas prone to flooding shall be constructed on raised foundations rather than fill material, where practical.*

Policy FLD-O-2: *Off-site runoff associated with development should be minimized.*

Policy FLD-O-3: *Short-term and long-term erosion associated with development shall be minimized.*

DevStd FLD-O-3.1: *Development projects shall incorporate sedimentation traps to minimize the erosion of soils into natural and manmade flood control drainages, where feasible. All development adjacent to stream channels shall be required to install check dams as deemed appropriate by Flood Control and Planning & Development to minimize channel down-cutting and erosion. To the maximum extent feasible, all such structures shall be designed to avoid impacts to creek vegetation.*

DevStd FLD-O-3.2: *Silt fencing, straw bales, sand bags, and sediment basins shall be used in conjunction with other methods to prevent erosion on slopes and siltation of the stream channel.*

DevStd FLD-O-3.3: *Drainage outlets into natural creek channels shall be constructed in a manner which causes outlet flow to approximate the general direction of natural stream flow. Energy dissipaters beneath outlet points shall be incorporated where appropriate, and designed to minimize damage to creek vegetation.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-4*: The area depicted in Figure KS21-1 shall remain in natural, undeveloped open space. No development except trails or a roadway to parcel 113-250-17 and/or the existing parking lot shall be permitted within*

this open space and no structures shall be permitted within 50 feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.

ANALYSIS: *CONSISTENT*. The proposed residential development is located outside of the FEMA designated 100-year flood zones. No structures would occur within 50 feet of the Orcutt Creek tributary banks. The proposed Project would not result in storm water runoff in excess of County standards. The proposed retention basins in each Specific Plan Neighborhood is adequately designed to control storm water runoff, and would minimize off-site sediment loads. In addition, the project includes LID measures that would help control storm water runoff where it is generated to reduce downstream impacts.

The proposed Project would also be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), which would reduce construction related erosion and water quality impacts. The SWPPP is required to implement soil stabilization techniques such as geo-textile materials, gravel bags and sediment basins. Adherence to the SWPPP requirements and Flood Control District conditions of approval would ensure that the proposed Project would not cause or contribute to flood hazards or cause long term erosion hazards. Therefore, the proposed Project is ***consistent*** with these Policies and Development Standards.

Land Use Element – Historical and Archaeological Sites Policies

Policy #1: *All available measures, including purchase, tax relief, purchase of development rights, etc., shall be explored to avoid development on significant historic, prehistoric, archaeological, and other classes of cultural sites.*

Policy #2: *When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids impacts to such cultural sites if possible.*

Policy #3: *When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate mitigation shall be required. Mitigation shall be designed to accord with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission.*

Policy #4: *Off-road vehicle use, unauthorized collection of artifacts, and other activities other than development which could destroy or damage archaeological or other cultural sites shall be prohibited.*

Policy #5: *Native Americans shall be consulted when development proposals are submitted which impact significant archaeological or cultural sites.*

Orcutt Community Plan – History and Archaeology

Policy HA-O-1: *Archaeological and historic resources in the Orcutt Planning Area shall be protected and preserved to the maximum extent possible.*

DevStd HA-O-1.1: *Development on Key Sites that have not been surveyed by a County-qualified archaeologist should be surveyed and mitigated in accordance with State and County archaeological and historic guidelines.*

ANALYSIS: *CONSISTENT*. The entire Specific Plan area, including the 1,000-foot long sewer line connection on key site 22, has been surveyed by County-qualified archaeologists and recorded. One historical archaeological site, CA-SBA-1169/H is recorded outside of proposed residential development and is located in an Open Space area.

One archaeological artifact isolate, RME-1, is located within the Rancho Maria Golf Course area and would not be impacted by Specific Plan buildout.

OCP EIR mitigations requiring seeding this archaeological site to protect the resource for future increases in public access and posting of signs on the property to discourage disturbance and illicit artifact collection would be implemented. If unknown archaeological or historical resources were uncovered during construction, the contractor would be required to stop work immediately and retain a P&D approved archaeologist and Native American Representative to evaluate the significance of the find in compliance with the provisions of Phase 2 investigations of the County Archaeological Guidelines. Therefore, the proposed Project is ***consistent*** with these Policies and Development Standards.

Land Use Element – Parks/Recreation Policies

Policy #1: *Bikeways shall be provided where appropriate for recreational and commuting use.*

Policy #3: *Future development of parks should emphasize meeting the needs of local residents.*

Policy #4: *Opportunities for hiking and equestrian trails should be preserved, improved and expanded wherever compatible with surrounding uses.*

Policy #5: *Schools and other publicly-owned lands should be utilized for joint use recreational activities whenever possible.*

Orcutt Community Plan – Parks, Recreation, Trails, and Open Space

Policy PRT-O-1: *Diverse passive and active recreational activities shall be developed in Orcutt.*

DevStd PRT-O-1.1: *To the maximum extent feasible and consistent with applicable law, development on sites with identified proposed public parks shall dedicate and, where appropriate, construct such facilities.*

Action PRT-O-1.2: *The County shall continue to coordinate with the school districts to include joint-use park and recreation facilities adjacent to public schools.*

Policy PRT-O-2: *Development of parks shall be consistent with the community's existing semi-rural character and landscaping.*

DevStd PRT-O-2.1: *Except for active recreation areas and other essential lawn space, park landscaping should consist of drought tolerant species. Appropriate native plants shall be utilized along park boundaries adjacent to passive undeveloped open space areas.*

Policy PRT-O-4. *The County Park Department and other agencies or groups pursuing implementation of the trail system shall use the Orcutt Multiple Use Trails Plan and its Trail Siting and Design Guidelines to guide future trail development and implementation.*

DevStd PRT-O-4.1. *Planning & Development and the County Park Department shall implement the*

Orcutt Multiple Use Trails Plan, including the Trail Siting Guidelines, by requiring, to the maximum extent feasible, development projects to dedicate, and where appropriate, construct designated trails. The County shall also pursue other methods to acquire and construct the trail system, including the use of grants and community volunteers.

DevStd PRT-O-4.2. *Development shall comply with the Trail Siting Guidelines as set forth in the Orcutt Multiple Use Trails Plan.*

DevStd PRT-O-4.3. *Development on sites with identified trail corridors (Figure 14 in the OCP) shall include, where appropriate, the construction and assurance of the fitness of designated trails for two years, at which time the County Park Department would assume maintenance responsibility. Where immediate construction is not required, a construction bond shall be required.*

DevStd PRT-O-4.4. *Trails should cross primary, and where appropriate secondary, roadways at controlled intersections. Trails located within an urban area may be included within the sidewalk system where appropriate. Trails in natural undeveloped open space areas, except Class I bikeways and emergency access routes, shall be limited to 6 feet in width.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-5*: The developer shall dedicate an easement for and construct a public staging area and hiking trail along the east side of the site boundary as depicted on Figure KS21-1.*

DevStd KS21-7*: Residential units adjacent to the existing golf course should be designed to include private outdoor areas (e.g.: landscape buffering) and ensure safety from stray golf balls. Development shall be designed to facilitate pedestrian access to the golf course and accommodate continued use of the public golf course.*

ANALYSIS: CONSISTENT. The Neighborhoods Specific Plan provide a 2,800-foot long public trail and a six-space trailhead parking area at the trail head in the Hidden Creek Neighborhood. The trail would follow Orcutt Trail Siting and Design Guidelines to avoid impacts to surrounding land uses and environmental resources. The trail would be 4-6 feet in width and would be sited in an open space area approximately 100 yards from structures. Fencing would also be installed along the east side of the site boundary to avoid impacts to neighboring agricultural uses. The trail would not be sited within a riparian area, and would be sited to avoid highly erosive soils and impacts to drainage. No known cultural, archaeological, and historic resources exist along the proposed hiking path.

The hiking trail would cross the secondary access road to the Hidden Canyon neighborhood and connect with the proposed sidewalk system. It would provide access from the residential development (Hidden Canyon) to approximately 400 feet above sea level, a 190-foot elevation gain that would end at the proposed water tank in the southeast corner of the Specific Plan area. The Hidden Canyon tract map includes dedication of an easement that would extend from the terminus of the proposed public trail and extend an additional 750 feet to the Specific Plan southeastern boundary. Potential buildout of the remaining 750 feet of trail would be feasible by bonding for future completion of the improvement as dictated by the County Parks Department. The construction of the trail and bonding for the remainder of the 750 feet would ensure consistency with the OCP Development Standard Key Site 21-5

Further, the frontage along Highway 1 would be widened to accommodate bicycle traffic providing additional access to the hiking trail. Trail signage and vehicle barriers would be implemented to ensure adequate access

control. The hiking trail would be maintained by the Neighborhoods HOA for public use. Trail siting and maintenance would be conducted to minimize introduction of exotic weedy plants.

The proposed development is located 3 miles east of the nearest public school. Thus, it is not feasible to locate the proposed trail adjacent to school facilities. However, community access to the new trail would be provided for shared public use. Therefore, the proposed Project is ***consistent*** with these Policies and Development Standards.

Orcutt Community Plan –Open Space

Policy OS-O-1. *When considering approval of development projects within or adjacent to areas identified for potential public open space (see Table 21), the County shall review the appropriate mix of public and/or private open space, and to the maximum extent feasible require dedication of contiguous areas identified as a priority for public acquisition as public open space based on the following criteria:*

Location within designated open space corridors and proximity of adjacent open space;
The criteria and intent of the PRD zone district; and
Demonstration of rough proportionality between the level of permitted development, its associated impact, and the open space dedication, consistent with applicable laws.

Policy OS-O-2: *The County's priority for acquisition of public open space is on PRD sites within and adjacent to areas identified for potential public open space (see Table 21 of the OCP). The County should consider acceptance or acquisition of public open space in other zone districts based on the criteria in Policy OS-O-1, the importance of the site's natural resources and recreation potential, and the level of public and property owner interest.*

Action OS-O-2.1: *The County shall encourage property owners to contact the Land Trust or other appropriate agencies regarding the dedication of conservation or open space easements for lands within the designated open space corridor. Such easements may be considered for eventual transfer to the County or held in perpetuity by the organization as long as the lands are managed in a manner consistent with the policies of the Open Space Plan for the provision of recreation and protection of natural resources.*

Policy OS-O-3. *Private open space within designated open space corridors shall be sited, designed, and managed to protect the natural resources and/or recreation potential of these corridors, consistent with the Open Space, Park, Recreation, & Trails, and Biological Resources of the OCP.*

DevStd OS-O-3-3.1. *Where lands within open space corridors remaining private open space, at the time of discretionary development approval the County should consider acquiring open space easements or using other mechanisms to ensure management of the natural resources in these corridors consistent with the goals of the Open Space Plan.*

Policy OS-O-4. *Development adjacent to, or within designated open space areas, shall be sited and designed to protect and enhance the natural resources of these areas, and accommodate appropriate recreation opportunities as identified in the Parks, Recreation and Trails section of this Plan.*

DevStd OS-O-4.1. *Prior to approval for any development within or adjacent to an open space area, a determination must be made that the proposed development is consistent with all applicable open space policies of the OCP, the OCP Open Space Map, as well as the regulations of the base zone district.*

DevStd OS-O-4.2. *Designated open space boundaries may be subject to minor adjustments inward or outward from the designated open space area on a case-by-case basis in order to allow for substantial improvements in project design, enhance fire safety buffers and fuel management zones, to protect visual qualities from and of adjacent open space areas, or to include biological historic or archaeological sites. The OCP, EIR and other available data shall be used in determining the location, width, and extent of the open space boundary adjustment. Decision makers shall make a determination that such a minor boundary adjustment would be consistent with the overall goals of the Open Space Plan and Biological, History, Archaeology policies, and would avoid disruption of significant natural resources and recreation opportunities located within designated open space areas.*

DevStd OS-O-4.3. *No structures shall be located within a designated open space area with the exception of: related structures necessary for the provision of active and passive recreation opportunities that would not adversely affect open space areas, and flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety (including retention basins). Culverts, crossings, roads, pipelines, fences, and bridges may be permitted when no alternative route or location is feasible, or where other constraints or site design considerations (e.g. public safety) would require such structure.*

Policy OS-O-5. *The County shall encourage public use of trails and recreation facilities within designated open space areas consistent with protection of natural resources. Such public trails and recreation facilities shall be sited and designed to reduce conflicts with adjacent private property through use of unobtrusive fencing, landscape screening, appropriate setbacks, signage, etc.*

Policy OS-O-6: *The County should acquire the open space lands prioritized for public acquisition through dedication by working with property owners and interested groups, or through purchase. Where dedication is required, the County shall offset fees as required. If dedication is not required, the County may consider purchase, use of the TDC program or permitting the property to remain as private open space, consistent with the standards of this plan for natural resource protection and provision of passive and active recreation opportunities.*

Action OS-O-6.1. *On sites being considered for a rezone from rural or more open space uses (e.g., agriculture, ranchette) or sites receiving substantial increases in density and/or developable area, the County should delay approval of the rezone to a higher density until the preferred public open space lands on these sites have either been dedicated to the County or secured by other mechanism (e.g., development agreement).*

DevStd OS-O-7.3. *If a Mello Roos District is formed in the Orcutt Planning Area to find operations and maintenance of parks, recreation, open space and trails, prior to discretionary project approval of project which impact open space, all applicants in the Planning Area must agree to either participate in the Mello Roos District, or provide other mitigation of the project's impacts on these services and demonstrate that a Home Owners Association will be formed which will generate adequate revenues to provide long term operations and maintenance of any private services.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-4: *The area depicted in Figure KS21-1 shall remain in natural, undeveloped open space. No development except trails or a roadway to parcel 113-250-17 and/or the existing parking lot shall be permitted within this open space and no structures shall be permitted within 50 feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.*

ANALYSIS: ***CONSISTENT***. The proposed Project includes approximately 97 acres of undisturbed open space, representing over 51% of the overall Specific Plan area. An additional 72 acres of open space would be provided compared to the approved 1997 OCP, representing over a 74 percent increase. The undisturbed open space would protect natural resources and would provide large contiguous blocks of open space for wildlife. It would include and protect the only cultural resource with the Specific Plan area, an historic-period artifact scatter. As discussed for "Parks, Recreation, Trails and Open Space," the trail would be sited and designed to reduce land use conflicts and would be consistent with the protection of natural resources. Long-term funding of operation and maintenance costs of the open space would be conducted by The Neighborhoods HOAs.

Construction of the Project would impact two protected coast live oak trees, approximately 1.5 acres of purple needle grassland, 0.73 acres of perennial rye grass fields, 2.17 acres of coyote brush scrub, 0.18 acres of coastal sagebrush scrub, 1.55 acres of riparian habitat. However, ample area exists within the open space for on-site restoration, as required by Mitigation Measures BIO-1.1, BIO-1.2.1, BIO-1.3.1, BIO-1.5, BIO-2.2, and BIO-2.4. With implementation of these mitigation measures, impacts to biological resources would be less than significant. Additionally, drought tolerant, locally native plant species would be used throughout the site, including areas adjacent to open space. Therefore, the proposed Project is ***consistent*** with these Policies, Actions, and Development Standards.

Orcutt Community Plan – Police Protection

Action PP-O-1.6: *P&D shall give the Sheriff Department the opportunity to review development projects with substantial open space to determine the adequacy of public safety measures.*

ANALYSIS: ***CONSISTENT.*** The proposed development would include a public trail in private open space. Existing Sheriff's services are expected to provide adequate public safety measures. Therefore, the proposed Project is consistent with this action.

Land Use Element - Visual Resource Policies

Policy 1: *All commercial, industrial and planned developments shall be required to submit a landscaping plan to the County for approval.*

Policy #3: *In areas designated as urban on the land use plan maps and in designated rural neighborhoods, new structures shall be in conformance with the scale and character of the existing community. Clustered development, varied circulation patterns, and diverse housing types shall be encouraged.*

Policy #4: *Signs shall be of size, location, and appearance so as not to detract from scenic areas or views from public roads and other viewing points.*

Policy 5: *Utilities, including television, shall be placed underground in new developments in accordance with the rules and regulations of the California Public Utilities Commission, except where cost of undergrounding would be so high as to deny service.*

Orcutt Community Plan – Visual

Policy VIS-O-1: *Significant scenic and visual natural resources in Orcutt shall be protected in order to preserve the semi-rural character of the OPA.*

DevStd VIS-O-1.1: *All development including buildings, under stories, fences, water tanks and retaining walls adjacent to designated natural open space areas shall be sited and designed to protect the visual character of these areas and blend in with natural landforms through the use of such methods as setbacks, building orientation, materials and colors (earth tones and non-reflective paints), landscape buffers, shielded exterior lighting, screening of parking areas and inclusion of perimeter roads to allow maintenance of open space corridors.*

Policy VIS-O-2: *Prominent public view corridors (U.S. 101, State Routes 1 & 135, Clark Ave., Santa Maria Way, and Union Valley Parkway) and public view-sheds (Orcutt/Solomon Hills, Casmalia Hills, and Orcutt Creek) shall be protected.*

DevStd VIS-O-2.1: *Development shall be sited and designed to minimize the disruption of important public view corridors and viewsheds through building orientation, minimization of grading on slopes, landscaping, and minimization of sound walls.*

DevStd VIS-O-2.2: *New homes on lots on the edge of bluff tops and canyon walls along significant open space/view corridors shall be of single story or partial second story design to minimize impacts to public view corridors (i.e.: public roads, trails, etc).*

DevStd VIS-O-2.3: *All projects in the Orcutt Hills (e.g. sites 6, 7, 12 and 14) shall utilize a combination of perimeter landscaping, the planting of street trees and other trees, and other design techniques to screen new homes from the community while minimizing disruption of views through to the Solomon Hills.*

Policy VIS-4: *Public and private storm water systems (recharge, retention, and retardation basins, culverts, channels, etc.) shall be designed and maintained to be visually attractive.*

Dev Std VIS-O-4.1: *Basins shall be engineered so that perimeter fencing is minimized. Where required, perimeter fencing shall be unobtrusive (while minimizing interference with wildlife movement on rural parcels). Perimeter landscaping of basins shall consist of low maintenance trees, shrubs, turf, etc., and on public basins should be designed to accommodate recreational uses where appropriate. Landscaping and fencing within the basins should be maintained through a Landscape-Open Space Maintenance District.*

Policy VIS-O-6: *Outdoor lighting in Orcutt shall be designed and placed so as to minimize impacts on neighboring properties and the community in general.*

DevStd VIS-O-6.1: *Low pressure sodium (LPS) lighting or other alternative methods used for street lighting, parking lot lighting and security lighting should be investigated by the Public Works Department to reduce off-site impacts from night lighting.*

DevStd VIS-O-6.3. *Night lighting fixtures adjacent to residential areas shall be of the minimum height and intensity required for security/safety.*

<u>Orcutt Community Plan Key Site 21 Site Specific Development Standard</u>

DevStd KS21-6*: Development along Highway 1 shall include installation and maintenance of an average 50-foot wide landscaped buffer along the highway with which would exceed 50 feet in height at maturity planted in clusters a maximum of every 100 feet (part of this screen may be developed in an easement secured from*

Caltrans, providing an adequate permanent buffer is ensured). The buffer shall be landscaped with a sufficient density of trees and shrubs to screen views of all parking areas and to break-up and screen views of development from Highway 1.

***DevStd KS21-11**: The development should minimize visual impacts to Highway 1 and the surrounding rural area through the use of low-profile design, earthtone colors and vegetated setbacks. The Specific Plan shall be reviewed for compatibility with adjoining agricultural uses.*

ANALYSIS: *CONSISTENT*. The Neighborhoods Specific Plan would limit building heights to 35 feet (and to single-story adjacent to Rancho Maria Golf Course playing areas) to create a low-profile design and cluster development to minimize impacts to public views. The Specific Plan would also require low perimeter fencing adjacent to agricultural uses, landscape screening for structures and water tanks, and monumental signage that utilizes earth-tone colors and has a pedestrian scale, which would ensure that the proposed Project would be in conformance with the scale and character of this semi-rural area. Additionally, the proposed Specific Plan includes architectural and landscape design guidelines to ensure that the residential development is complementary to the surrounding agricultural uses. These guidelines provide site, landscape, and architectural guidance that require future residential development to include low reflectivity glass, earth-tone colors for building materials, and the use of plant material along the perimeter of the structures to soften views. Furthermore, all electrical utilities would be underground. Design review and approval by North Board of Architectural Review (NBAR) and P&D prior to zoning clearance issuance would ensure these design guidelines are implemented.

Development Standard VIS-O-2.3 requires the use of perimeter landscaping, and other design techniques to screen new homes from the community while minimizing disruption of views through to the Solomon Hills. The Specific Plan contains development standards intended to screen views of the Project from the community, including setbacks, landscaping, and building orientation. Project site topography was evaluated to determine a residential footprint that would minimize grading and modification to existing topography, minimizing the disruption of important public views. Consistent with site-specific development standards, a 50-foot wide landscaped buffer along Highway 1 which would exceed 50 feet in height at maturity would be planted in clusters a maximum of every 100 feet to screen views of development from Highway 1.

Stormwater retention basins would serve the Hidden Canyon and Willow Creek neighborhoods. The basins would be privately owned and maintained by the Neighborhoods Homeowners' Association. The Neighborhoods HOA would use low maintenance native grasses and sedges along the perimeter each basin. The basins would be fenced with either wooden split rail or steel tubular fencing. This fencing would maintain a rural character of the area. The basins and associated drainage areas would be revegetated with species allowing for drainage and compatibility with surrounding open space.

The Neighborhoods Specific Plan incorporates lighting standards that minimize impacts on surrounding areas consistent with Policy VIS-O-6, requiring that lighting fixtures have the minimum height and intensity needed for security purposes, be low glare, and be directed downward or shielded to prevent spill-over. Review of final landscaping, lighting, and architectural design plans by the NBAR would further ensure consistency with DevStd VIS-O-1.1.

Development would occur along significant view corridors discussed in Policy VIS-O-02. Although development of the site would contribute to a change in visual character compared to existing conditions, residential buildout would be concentrated in the eastern and western portions of the sites, leaving approximately 66% of the Project site remaining in undeveloped open space. As a result, important vistas from Highway 1 would be

preserved in open space, as would the majority of woodland and wetland/riparian areas located on the Project site. The maximum 35-foot residence height (and single-story adjacent to the Rancho Maria Golf Course playing areas) would minimize the effect on the obstruction of important visual resources experienced from adjacent topography. Therefore, the obstruction of important visual resources from these view corridors would be minimized and the proposed Project would be ***consistent*** with these Policies and Development Standards.

Orcutt Community Plan – Fire Protection

Policy FIRE-O-2: *Fire hazards in Orcutt shall be minimized in order to reduce the cost of/need for increased fire protection services and to protect the natural resources in undeveloped open space areas.*

DevStd FIRE-2.1: *Development within or adjacent to high fire hazard areas should include the use of fire prevention measures such as perimeter roads, trails, Class A or B roofs, adequate access to the urban/rural interface and inclusion of structural setbacks per DevStd BIO 1.7. Fencing within the structural setback shall be comprised of fire-resistant material to minimize fire hazards.*

DevStd FIRE-2.2:*The County shall require two routes of ingress and egress for development unless waived by the Fire Department unless waived the Fire Department waives this requirement based upon substantial evidence that public safety will not be compromised. Emergency access and egress routes are not required to be paved or meet width standards for normal roadways.*

DevStd FIRE-O-2.3: *Orcutt foothill development shall be protected by water storage tanks connected to an existing water purveyor or private water supplies*.

Policy FIRE-O-3: *The use of fuelbreaks in Orcutt shall be minimized, and where fuelbreaks are necessary they shall be sited to minimize disruption of significant natural resources.*

DevStd FIRE-O-3.1: *Fuelbreaks should incorporate perimeter roads and yards to the greatest extent feasible. (See Section IV.B (Biology) for additional firebreak standards.*

DevStd FIRE-O-3.2: *To the maximum extent feasible, fuelbreaks shall not be constructed through riparian or wetland areas or result in the removal of healthy specimen oaks. Within fuelbreaks, treatment of oak trees shall be limited to limbing the branches up to a height of 6 feet, removing dead wood, and mowing the understory. Where specimen oaks have multiple trunks, all trunks shall remain.*

ANALYSIS: ***CONSISTENT***. The Project site would continue to receive fire protection services from the Santa Barbara County Fire Department Station 21, located at 355 Union Avenue. The Project site is located within a five-minute fire response time and would be developed with fire hydrants that would be supplied by two on-site water tanks. The project would be connected to a water system featuring two subterranean 500,000-gallon water tanks with booster pumps, one each constructed in the southerly, most elevated portion of the Willow Creek and Hidden Canyon Neighborhoods. The water systems would provide adequate fire flow per standards of the County Fire Department. Further, each neighborhood includes two routes of ingress and egress that have been preliminarily reviewed and approved by the Fire Department. Additionally, the applicant has proposed trails, perimeter roads, and structural setbacks to separate structures from open space. Moreover, the Specific Plan *Design Guidelines* specify the use of Class A roofing and fire-resistant vinyl or composite (Trex or similar material) fencing where residential lots would be adjacent to undisturbed open space areas.

The County Fire Department does not implement fire prevention vegetation management zones associated with establishing a "defensible space" extending beyond residential property boundaries. However, fuelbreaks would be created by the existing irrigated golf course, the provision of perimeter roads, trails, and setbacks, as well as implementation of a 100-foot fuel modification zone required under Specific Plan *Design Standards*. The placement of the proposed roads, trails and residential units is consistent with areas identified for development in the OCP. All homes would have interior fire sprinklers consistent with the 2016 Fire Code. Implemention of these features would ensure that the Project would be ***consistent*** with these Policy and Development Standards.

Orcutt Community Plan – Library

DevStd LIB-O-1.2: *The County shall require a library mitigation fee on development to fund the cost of acquisition by purchase or lease, construction, and furnishing of a new library facility. The fee shall be determined upon completion of an infrastructure financing program. All development approved after adoption of the OCP shall be subject to this fee, which shall be paid prior to issuance of Building Permits or as determined by the infrastructure financing program.*

DevStd LIB-O-1.4: *If Mello Roos Community Facilities Districts are formed in the Orcutt Planning Area to fund operation and maintenance of a library, prior to discretionary project approval of projects which impact libraries, all applicants in the planning area must either agree to participate in the District's funding mechanisms for library services or otherwise demonstrate that the project is fully mitigating the increase in demand for library services caused by the project.*

ANALYSIS: *CONSISTENT*. A Community Facilities District has been formed for Orcutt development. The District provides for the opportunity to make additional general funds available for the operation and maintenance of libraries. Adherence to Mitigation Measure PS-5.1 that requires the payment of library development fees would ensure consistency with these Development Standards.

Orcutt Community Plan – Resource Recovery Policies

Policy RR-O-1: *Resource conservation and recovery shall be implemented in Orcutt to divert the waste stream from area landfills to the maximum extent feasible.*

DevStd RR-O-1.4: *Developers shall provide recycling bins at all construction sites, where collection of currently accepted recyclable construction materials could be accommodated.*

Action RR-O-1.7: *To the greatest degree feasible, in new development of 20 units or greater, the developer shall work with the local recycling service to ensure that curbside recycling pick-up service is provided.*

ANALYSIS: *CONSISTENT*. Adherence to Mitigation Measure PS-2.1, which requires preparation of a Source Reduction and Solid Waste Management Plan (SRSWMP) including provisions for a green waste collection and residential recyclable pick-up, would ensure consistency with Policy RR-O-1. Further, adherence to Mitigation Measure PS-2.1 would require additional recycling provisions during the construction phase of the project. Health Sanitation Services (HSS) would provide curbside recycling and separate green waste pick-up to the Project site. Further, the County ensures compliance with the goals set by AB 939 by requiring a reduction in solid waste generation for all new development projects in the County. The County estimates that implementation of a source reduction and recycling

program reduces the total volume of waste generated by new development projects by approximately 50%. Therefore, the proposed Project would be consistent with this Policy, Development Standard, and Action.

Orcutt Community Plan – Schools

Policy SCH-O-1: *The County shall strive to ensure that new development fully mitigates its impacts to school facilities and does not cause school overcrowding.*

Action SCH-O-1.1. *The County shall require that all statutory school facilities fees established by School Districts in the Orcutt Planning Area pursuant to Govt. Code Section 65996 be paid in full prior to issuance of building permits or as agreed to by the applicant and the school district.*

Policy SCH-O-2. *New recreational facilities should be located near or adjacent to school facilities as much as possible to allow for joint use by schools and the community.*

ANALYSIS: ***CONSISTENT.*** The proposed Project would generate 69 students to the Orcutt Union School District (OUSD) and the Santa Maria Joint Union High School District schools based on the OUSD Developer Fee Justification Study (1994) standards. While these additional students would increase existing over-enrollment at schools currently exceeding design capacity, the collection of state-mandated fees (pursuant to Section 65995 (3) (h) of the California Government Code) is considered full and complete mitigation for impacts related to public schools. All required school fees would be paid in full prior to issuance of any building permits.

The proposed development is located 3 miles east of the nearest public school. Thus, it is not feasible to locate the proposed trail adjacent to school facilities. However, community access to the new trail would be provided for shared public use. Therefore, the proposed Project is consistent with these Policies and Actions.

Orcutt Community Plan – Wastewater

Policy WW-O-1: *The County shall strive to ensure development of adequate sewer facilities necessary to service projected growth.*

Policy WW-O-2. *Prior to discretionary approval of a new development, the County shall make a finding that there will be adequate capacity and availability for LCSD to serve the new development.*

DevStd WW-O-2.1: *Prior to the discretionary approval of new development, the developer shall identify all additional facilities required to adequately collect, convey, treat and dispose of the sewage effluent from the development.*

DevStd WW-O-2.3: *A "Can and Will Serve Letter" from LCSD will be found adequate for recording of maps or issuance of land use permits (including permits for development of preexisting lots) only if the letter demonstrates:*

> *LCSD's effluent, including the effluent from the proposed Project, will not exceed the discharge standards established by the Regional Water Quality Control Board;*
> *Adequate disposal capabilities exist at the plant or through agreement with the City of Santa Maria (providing that treatment and disposal by the City does not further degrade the underlying groundwater quality) to serve*

the project(s); and Existing or planned and funded transmission lines have available capacity to serve the project(s).

DevStd WW-O-2.4: *At the time of discretionary approval, the County shall condition the recordation of the final map or issuance of LUP's on provision of an adequate "Can and Will Serve" letter from LCSD.*

ANALYSIS: *CONSISTENT*. The Laguna County Sanitation District (LCSD) indicates that adequate capacity and availability exists within the existing treatment facilities to accommodate the proposed Project. Additional trunk and feeder lines are required for the proposed development, but implementation of mitigation measures-3.1 would ensure that the developer pays for these lines. Implementation of condition PS-3.2 would ensure that the project's wastewater shall not exceed RWQCB thresholds. The Laguna County Sanitation District (LCSD) would provide the project applicant with a "Final Can and Will Serve Letter" prior to map recordation and demonstrating the requirements listed in Development Standard WW-O-2.3. Therefore, the proposed Project is consistent with these policies and development standards.

Housing Element

Policy 1.1. *Promote new housing opportunities adjacent to employment centers, and the revitalization of existing housing to meet the needs of all economic segments of the community, including extremely low income households, while bolstering the County's rural heritage and supporting each unincorporated community's unique character.*

Policy 3.1. *Promote equal housing opportunities for all persons in all housing types (ownership and rental, market-rate and assisted).*

Policy 4.1: *Preserve the affordable housing stock, maintain its affordability, improve its condition, and prevent future deterioration and resident displacement. Participate in available Federal and State housing subsidy and assistance programs and use the County's own resources in order to leverage maximum funding for the provision of affordable housing.*

ANALYSIS: *CONSISTENT*. The Specific Plan would provide a total of 146 new dwelling units in unincorporated Orcutt, providing opportunities to enjoy the area's semi-rural character. The Project site is located in close proximity to areas of employment, including the Rancho Maria Public Golf Course and downtown Orcutt. Thus, the Project is ***consistent*** with Housing Element Policy 1.1.

The proposed Project would provide a diversity of housing types. The project provides 146 detached residential home sites within 189.2 acres consistent with the anticipated buildout for Key Site 21 in the OCP. Of these, 56 larger home sites would occur in the "Hidden Canyon" neighborhood with lots sizes approximately 18,000 square feet in are on average. The "Willow Creek" neighborhood would be higher in density and have 90 lots approximately 11,375 feet in area on average. The neighborhoods would be dispersed in two different areas of the Project site. Therefore, the project is ***consistent*** with Housing Element Policy 3.1.

The California Department of Housing and Community Development (State HCD) periodically determines the housing needs for the entire county to accommodate projected jobs and population growth. The Santa Barbara County Association of Governments (SBCAG) then allocates a share of the housing needs to each city (incorporated areas) and the county (unincorporated areas) as part of a Regional Housing Needs Allocation (RHNA). The County's RHNA for the 2014-2022 RHNA projection period is 661 units. To plan for an adequate housing supply for all economic segments of the population, the RHNA is separated into four broad income categories: 159 extremely

low/very low-income units, 106 low-income units, 112 moderate-income units, and 284 above moderate- income units. Appendix B of the 2015-2023 Housing Element includes an inventory of housing sites that are zoned and suitable to accommodate the RHNA within all income categories. Payment of standard County in-lieu housing fees would contribute to the construction of affordable units throughout the Santa Maria HMA and would meet the Project's affordable housing requirement (RHNA).

Hidden Canyon and Willow Creek neighborhoods are part of the land inventory with a potential housing production of 146 above-moderate income units. According to County HCD staff, the median sale price of all housing units within the Santa Maria HMA over the past year was affordable to moderate income households. Therefore, moderate and workforce housing (at both the 120% and 150% median income levels) requirements have been reduced to zero in this Housing Market Area at the current time because housing at this income level is currently available in the Santa Maria Housing Market Area (HMA). As the Project would provide above moderate income units, the project would be potentially consistent with provisions in the Housing Element and State law regarding the County's RHNA.

Noise Element

Policy #1: *In the planning of land use, 65 dB Day-Night Average Sound Level should be regarded as the maximum exterior noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs.*

Orcutt Community Plan – Noise

Policy NSE-O-1: *Development of new noise sensitive uses (as defined in the Noise Element) in Orcutt should provide attenuation of ambient noise levels for indoor living areas and, where practical, for outdoor living areas.*

DevStd NSE-O-1.1. *Noise sensitive land uses should be located outside of the 65 dB(A) CNEL contours, unless this would prevent reasonable development of a property.*

DevStd NSE-O-1.2. *Noise sensitive uses proposed in areas exceeding 65 dB(A) CNEL shall be designed so that exterior living spaces do not exceed 65 dB(A) CNEL and interior noise levels attributable to exterior sources do not exceed 45 dB(A) CNEL when doors and windows are closed. Noise insulation construction techniques may include installation of air conditioning for all units and double-paned windows and wall insulation for all window and wall locations with lines of sight to the noise source. Building design and construction specifications shall meet the interior noise standard set forth in California Administrative Code, Title 25, as demonstrated through an acoustical analysis prior to project approval.*

DevStd NSE-O-1.3. *Project design shall use a combination of vegetated berms, unit orientation or other methods to reduce noise affecting interior and exterior living spaces. The developer should retain a County-approved noise consultant to conduct a study determining the design and effectiveness of proposed noise reduction measures. Soundwalls shall only be used if alternative noise reduction measures are ineffective. If found necessary soundwalls shall be decorative masonry or wood walls planted with fast-growing vines and shrubs.*

DevStd NSE-O-1.5: *All residential development proposed for the area within the 60 dB or greater CNEL airport noise contour shall provide a Truth-in-Sales notice for future units indicating that the site is affected by low aircraft overflights and nuisance noise impacts. These sites include 5-9, 12, 18-23, 25-30, 32, 34, N, E, F and G. (per Airport Land Use Commission).*

Policy NSE-O-2. *Construction noise in Orcutt shall be minimized during non-standard work hours.*

DevStd NSE-O-2.1. *Standard construction working hours (i.e., 8 a.m. to 5 p.m., Monday-Friday) shall be required for development activities. Flexibility to allow extended hours on weekdays and/or occasional working hours on Saturdays should be determined on a case-by-case basis.*
DevStd NSE-O-2.2. *Noise attenuation barriers, muffling of grading equipment and additional mitigation where deemed appropriate should be required for development where construction equipment generates noise levels in excess of 95 dB(A).*

ANALYSIS: ***CONSISTENT.*** The proposed Project would not result in significant impacts related to exposure of new residences to roadway noise from Highway 1 as all proposed development is located outside of the 65 dB(A) CNEL noise contour as identified in the OCP. Thus, the use of soundwalls throughout the project is not required. Landscaping and setbacks would be included in the Project plans to reduce nuisance noise impacts, ensuring consistency with this development standard.

In addition, implementation of Mitigation Measure NOI-4.2 would ensure construction of temporary noise attenuation barriers and muffling of grading equipment. Implementation of Mitigation Measure NOI-4.1 would ensure construction operations are limited to normal work hours (8 a.m. to 5 p.m.), Monday through Friday. Upon implementation of these measures, exterior noise levels within the proposed Project would not exceed 65 dB. Implementation of Mitigation Measure NOI-2.1, requiring that homes facing SR 1 incorporate solid core doors and double-paned glass windows with other suitable noise-attenuating design to ensure that interior noise exposure is maintained at 45 dB(A) CNEL or below, would reduce potential long-term internal noise levels to less than significant Therefore, the proposed Project is ***consistent*** with these Policies and Development Standards.

Circulation Element

ROADWAY STANDARDS:

a. *A project that would contribute ADTs to a roadway where the Estimated Future Volume does not exceed the policy capacity would be considered consistent with this section of this Element.*

b. *For roadways where the Estimated Future Volume exceeds the policy capacity but does not exceed the Acceptable Capacity, a project would be considered consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway was less than or equal to 2 percent of the remaining capacity of that roadway or 40 ADT, whichever is greater.*

c. *For roadways where the Estimated Future Volume exceeds the acceptable capacity but does not exceed Design Capacity, a project would be considered consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway does not exceed 25 ADT.*

d. *For roadways where the Estimated Future Volume exceeds the design capacity, a project would be consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway does not exceed 10 ADT.*

Intersection Standards:

1. *Projects contributing PHTs (peak hour trips) to intersections that operate at an Estimated Future Level of Service that is better than LOS C shall be found consistent with this section of this Element unless the project results in a change in V/C (volume/capacity) ratio greater than 0.20 for an intersection operating at LOS A or 0.15 for an intersection operating at LOS B.*

2. *For intersections operating at an Estimated Future Level of Service that is less than or equal to LOS "C", a project must meet the following criteria in order to be found consistent with this section of this Element.*
   - *For intersections operating at an Estimated Future Level of Service C, no project must result in a change of V/C ratio greater than 0.10.*
   - *For intersections operating at an estimated future Level of Service D, no project shall contribute 15 or more Peak Hour Trips.*
   - *For intersections operating at an Estimated Future level of Service E, no project shall contribute 10 or more Peak Hour Trips.*
   - *For intersections operating at an Estimated Future Level of Service F, no project shall contribute 5 or more Peak Hour Trips.*

3. *Where a project's traffic contribution does not result in a measurable change in the V/C ratio at an intersection but does result in a finding of inconsistency with Intersection Standard 2 above, intersection improvements that are acceptable to the Public Works Department shall be required in order to make a finding of consistency with these intersection standards. A measurable change in V/C ratio shall be defined as a change greater than or equal to 0.01. (amended by 93-GP-12)*

4. *Where a project's traffic contribution does result in a measurable change in V/C ratio and also results in a finding of inconsistency with Intersection Standards 1 or 2, above, intersection improvements that are sufficient to fully offset the change in V/C ratio associated with the project shall be required in order to make a finding of consistency with these intersection standards. (amended by 93-GP-12)*

5. *The above intersection standards shall also apply to all projects which generate Peak Hour Trips to intersections within incorporated cities that are operating at levels of service worse than those permitted by the City's Circulation Element.*

A) *The roadway classifications, intersection levels of service, and capacity levels adopted in this Element shall apply to all roadways and intersections within the unincorporated area of the County, with the exception of those roadways and intersections located within an area included in an adopted community or area plan. Roadway classifications, intersection levels of service, and capacity levels adopted as part of any community or area plan subsequent to the adoption of this Element shall supersede any standards included as part of this Element.*

B) *The County shall continue to develop programs that encourage the use of alternative modes of transportation, including, but not limited to, an updated bicycle route plan, park and ride facilities, and transportation demand management ordinances.*

C) *A determination of project consistency with the standards and policies of this Element shall constitute a determination of project consistency with the Land Use Element's Land Use Development Policy #4 with regard to roadway and intersection capacity.*

Orcutt Community Plan – Transportation

Policy CIRC-O-1. *The County shall adopt and implement an Orcutt Transportation Improvement Plan (OTIP) which includes long-term improvements to roadways and alternative transportation facilities targeted to provide for acceptable levels of service on roadways and intersections within the planning area. The OTIP shall be an integrated Plan for capital improvements of roads and intersections as well as alternative transportation facilities. The OTIP shall contain a list of transportation projects to be undertaken and include projected costs for each funded and unfunded improvement. The County shall also revise the Transportation Impact Fee based upon the projected cost of transportation system improvements identified in the OTIP.*

Policy CIRC-O-2. *The County shall strive to provide an efficient and safe circulation system to accommodate future growth in Orcutt. The County will use its best efforts to coordinate the timing of roadway, intersection and other transportation improvements with the completion of the development projects that the improvements are intended to serve.*

Policy CIRC-O-3. *The County shall maintain a minimum Level of Service (LOS) C or better on roadways and intersections within the Orcutt Planning Area, except that minimum Level of Service for the Foster Road/Hwy 135 and Lakeview/Skyway Dr. intersections and Stillwell and Lakeview Roads shall be LOS D.*

Policy CIRC-O-4. *A determination of project consistency with the standards and policies of the Orcutt Community Plan Circulation Section shall constitute a determination of consistency with LUDP#4 with regard to roadway and intersection capacity.*

Policy CIRC-O-6. *The County shall encourage development of all feasible forms of alternative transportation in the Orcutt/Santa Maria area.*

Policy CIRC-O-8. *The County shall ensure that the circulation system maintains the quality of life within residential neighborhoods in the Orcutt Planning Area to the greatest extent feasible.*

Policy CIRC-O-9. *Development shall be sited and designated to provide maximum access to non- motor vehicle forms of transportation, including well designed walkways, paths and trails between residential development and adjacent and nearby commercial uses and employment centers, where feasible.*

Policy CIRC-O-10: *If it is determined that a project may cause significant traffic impacts which generate the need for offsite traffic improvements that are not identified in the then current OTIP, the County shall condition any approval of the project to ensure that those improvements are funded and completed before issuance of final inspection.*

DevStd CIRC-O-10.2: *If an Assessment District is formed in the Orcutt Planning Area to fund and maintain internal subdivision roads, prior to discretionary project approval of projects which impact transportation systems all applicants in the Planning Area must agree to either develop and maintain internal subdivision roads through the Assessment District, or agree to maintain these roads privately and demonstrate that a Homeowners Association will be established which will generate adequate revenues to provide long term maintenance of the roads.*

Orcutt Community Plan Key Site 12 Site Specific Development Standard

DevStd KS21-9*: The Specific Plan shall, to the maximum extent feasible, provide for coordinated access points on Highway 1 between this site and Key Site 22.*

ANALYSIS: *CONSISTENT.* The design of the Project's circulation system conforms to the requirements of the Orcutt Community Plan, including the design and location of roadways. Internal Project site access roads would intersect at Highway 1 to create new access points along this roadway. The Neighborhoods HOA would provide for the opportunity for long-term maintenance of private internal roads, pedestrian pathways and trails ensuring consistency with Development Standard CIRC-O-10.2.

Sidewalks, the hiking trail, and an extension of the frontage along Highway 1 to accommodate bicycle traffic are proposed as part of the project. These facilities connect to existing and future sidewalks, trails, and bikeways in the area and to the existing golf course.

Key Site 21 Development Standard KS 21-9 requires coordinated access points on Highway 1 between Key Site 21 and Key Site 22 to the maximum extent feasible. The Orcutt Community Plan identifies a proposed extension of Union Valley Parkway through Key Site 22, located directly across from the Rancho Maria Golf Cub, to Highway 1. The exact location of the Union Valley Parkway connection to Highway 1 has not been determined. However, the potential exists to align project access locations between Key Site 21 and Key Site 22 in the future.

The Orcutt Transportation Improvement Plan (OTIP) and Transportation Impact Fee have been adopted by the County. The proposed circulation system conforms to the adopted OTIP. With implementation of mitigation measures TRANS-4.1 through -4.4, all roadways and intersections would maintain an acceptable level of service after buildout of the Neighborhoods Specific Plan. Development of the proposed Project would not adversely affect any offsite bike. In addition, the project applicant would be required to pay transportation impact fees in accordance with the Orcutt Transportation Improvement Plan (OTIP). These improvements or fees would contribute to long- term improvements to maintain acceptable levels of service. Therefore, the proposed Project is ***consistent*** with these Policies and Roadway Standards.

Orcutt Community Plan – Groundwater Policies, Actions and Development Standards

Policy WAT-O-2: *In order to be found consistent with Land Use Development Policy No. 4 (LUDP#4), the water demand of new discretionary development must be offset by long-term* supplemental** water supplies that do not result in further overdraft of the local groundwater basin and that are adequate to meet the project's net water demand as determined by the County considering appropriate reliability factors as determined by County Water Agency.*

** "long-term" means permanent source of water for development.*

*** "supplemental" water means a source of water other than groundwater, unless: 1. the groundwater basin has been determined to be no longer in overdraft, or 2. The use of groundwater is consistent with the final water rights judgment entered in the Santa Maria Groundwater Basin adjudication (Santa Maria Valley Water Conservation District v. City of Santa Maria, et al., Santa Clara County Superior Court Case No. CV 770214). Amended by Res.01-225, 7/10/01*

DevStd WAT-O-2.1: *Prior to discretionary action by any County decision-maker on new development, the applicant shall provide one of the following:*

1. *A "Can and Will Serve" letter from California Cities Water Company dated before July 1997;*
2. *An "Intent to Serve" letter from California Cities Water Company or other water purveyor(s) including draft contract(s), if any, demonstrating to the County's satisfaction that the development's net water demand will be offset by a long-term supplemental water supply and that the development will have a continuing right to obtain water equal to that of the water purveyor's other customers. Contract(s), if any, must include terms consistent with the requirements of DevStd WAT-O-2.2.*

DevStd Wat-O-2.2*: Prior to discretionary action on new development, the applicant must demonstrate adequacy of the water supply proposed to serve the project, unless the applicant has satisfied DevStd WAT-O-2.1 #1 above. This demonstration shall be based on the following information, which must be provided prior to application completeness:*

Resources

- *Provide information on project's projected gross and net demand for water. The supplemental water supply must offset the project's net water demand.*
- *Documentation of the reliability of the proposed water supply as projected by the Department of Water Resources (for State Water) and confirmed by the County Water Agency.*
- *A description of how the project will be served during drought periods. If conjunctive use of the Santa Maria Groundwater Basin is planned, demonstration that use of the basin will not contribute to long-term groundwater overdraft considering drought periods. The factual determination of overdraft contribution shall be made by the Planning & Development Department and County Water Agency.*
- *Provide a factual demonstration that the water purveyor has available, firm, long-term reliable water supplies which equal or exceed present demand from existing customers, projects approved for new service, and the proposed Project under County review. The demonstration should also show that the project use would not contribute to overdraft of the basin. The factual determination of no additional overdraft shall be made by Planning & Development and County Water Agency.*
- *Provide draft contract(s) with water purveyor(s), which demonstrate(s) to the satisfaction of the County that the development will be served by a long-term supplemental water source and will have a continuing right to obtain water equal to that of the water purveyor's other customers.*
- *Provide information on the water purveyor's existing and projected range of potential State Water and/or other supplemental water delivery amounts needed for full build-out under the water purveyor's management plan, status of conservation programs, drought buffers, and groundwater pumpage consistent with applicable state government code requirements on water reporting. Provide information on the most recent annual water deliveries from various sources in the purveyor's service area, as available from existing reports. Facilities*
- *Documentation of the facilities necessary to deliver water and demonstration of permanent access to the facilities such that uninterrupted service would be provided. The documentation must include a list and description of facilities, site plans, capacity and capital costs necessary to distribute water to the project.*
- *Demonstration that capital costs associated with providing service to the new development will not impact existing Orcutt development.*
- *Demonstration that the water supply project is designed, approved, funded and scheduled for implementation prior to tract map recordation or land use clearance.*
- *Describe approvals and entitlements necessary for the proposed water supply and delivery system.*

DevStd Wat-O-2.3: *Prior to map recordation or land use clearance, the developer must provide a Can and Will Serve letter and necessary final contract(s) consistent with the conditions of the discretionary permits and terms of the draft contract(s).*

Policy WAT-O-3: *Development in Orcutt shall incorporate water efficient design and technology.*

Policy WAT-O-5: *To reduce overall TDS levels in the wastewater in Orcutt, and thereby reduce the level of potential groundwater contamination from disposal of this wastewater, water used to serve new development in Orcutt must have a TDS level of no greater than 425 mg/L. This may either be provided through direct deliveries of 425mg/L or less water to new development or through the delivery of offsetting 425mg/L or less water to the water system serving Orcutt. An exception to this standard is allowed only when the TDS level of State Water delivered to Santa Maria exceeds 425mg/L; in that case, the TDS level of water serving Orcutt may not exceed the TDS level of State Water. However, in "drought years" (as determined by the County Water Agency) water demand may be satisfied by groundwater pumpage in compliance with the adopted groundwater management agreement between the City of Santa Maria and the SMV Water Conservation District.*

ANALYSIS: ***CONSISTENT.*** The use of native groundwater to serve the development under the project is consistent with the final water rights judgement entered in the Santa Maria Groundwater Basin adjudication and meets the definition of "supplemental" set forth in WATER-O-2. In addition, the project proposes several low impact development (LID) measures that would provide water efficient design and technology, including recirculating, point-of-use, or on-demand water heaters, low flow plumbing fixtures, drought tolerant landscaping, water-efficient irrigation systems, and efficient use of water from roof drains for landscape irrigation. Further, outdoor water use will be required to comply with the Governor's emergency drought declaration and recent changes to State Model Water Efficient Landscape Ordinance and California Green Building Code. In addition, the applicant would be responsible for the installation of necessary water infrastructure to convey water to the Project site. Water quality data from 2008 to 2012 for the nearby existing RMGC course well drilled to approximately 600 ft. reveal a calcium-sulfate groundwater character with a TDS concentration of 615 mg/L and a pH of 7.3 to 7.4.

Detailed water quality analyses (Kear and Becker (2018) indicated no significant impediments to public service of this groundwater. Importantly, nitrate (a problem elsewhere in the Santa Maria Basin, especially in shallower aquifer zones) was detected at 1.57 mg/L as N (with a maximum contaminant level of 10 mg/L). These characteristics are reasonably expected to reflect recommended Primary and Backup Wells water quality. Given that the proposed wells would be constructed with contemporary practices and infrastructure, proposed Primary and Backup Wells would be expected to have slightly improved water quality over the existing RMGC well. Therefore, the proposed Project is ***consistent*** with these Policies, and Development Standards.

Orcutt Community Plan – Air Quality

Policy AQ-O-1: *The County shall encourage land use planning and development design which reduces air pollution through development of transportation infrastructure supportive of alternative modes of transportation and pedestrian oriented developments.*

Policy AQ-O-2: *Significant fugitive dust and PM_{10} emissions shall be reduced through implementation of appropriate construction restrictions and control measures, consistent with standards adopted by the Board.*

Policy AQ-O-3: *The County should promote the use of alternative fuels, solar energy systems, and the use of construction techniques which are designed to conserve energy and minimize pollution in Orcutt, consistent with, but not limited to the provisions of the CA Building Code.*

ANALYSIS: *CONSISTENT*. Development of the proposed Project would not adversely affect any offsite bike routes or park and ride facilities. The development areas are interconnected with each other and the surrounding areas with a network of sidewalks, trails, and bikeways.

Both construction and operation of the proposed Project would not generate significant ROC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions. Compliance with SBCAPCD Rule 302 would further mitigate any impacts related to fugitive dust (PM_{10}, and $PM_{2.5}$) generated during grading and construction activities.

Implementation of energy conservation measures, including but not limited to use of energy-efficient built-in appliances, low voltage lighting, dual glazed windows, active solar water heating systems, landscaping with drought-tolerant plants, installing skylights to maximize natural lighting, and passive solar heating and cooling. Therefore, the proposed Project is ***consistent*** with these Policies.

Orcutt Community Plan – Biological Resources

Policy BIO-O-1: *Important natural resources in Orcutt, including sandhill chaparral, central dune scrub, wetlands, oak trees and woodland, Bishop pine forest, specimen trees, and central sage scrub shall be protected, consistent with the Open Space Plan and the standards below, unless this would prevent reasonable development of a property.*

DevStd BIO-O-1.1: *Development shall be sited and designed to avoid disruption and fragmentation of significant natural resources within and adjacent to designated undeveloped natural open space areas, minimize removal of significant native vegetation and trees, preserve wildlife corridors and provide reasonable levels of habitat restoration. Where possible, significant natural resources, such as specimen trees, adjacent to designated, natural undeveloped open space corridors should be preserved.*

DevStd BIO-O-1.2: *Development within or adjacent to designated natural open space areas shall be reviewed for, and required to implement, habitat restoration where site- specific impacts require restoration. If restoration on or near the site is not feasible, acquisition and preservation of additional habitat acreage should be considered, as a last resort if no other like-kind habitat mitigation options are available, payment into a mitigation bank program within the OPA that is acceptable to the County as provided for by new DevStd BIO-O-1.8. Mitigation and restoration plans should identify acreage impacted, replacement ratios, success criteria, remedial measures, and funding and responsibility for long-term maintenance and monitoring. All such restoration projects shall utilize native plants derived from local (Orcutt) seed and cutting stock, or as deemed biologically acceptable by a County qualified biologist. Wildlife relocation should be avoided. However, any wildlife relocation should be coordinated with Fish and Game and be consistent with applicable State standards.*

DevStd BIO-O-1.3: *Landscaping for development on the edge of designated natural undeveloped open space areas shall include native trees and shrubs, with habitat restoration efforts focused on buffers. Planting of highly invasive weedy plants (e.g., iceplant. pampas grass, veldt grass, Monterey pine, eucalyptus, spiny clotbur, and Australian fireweed) shall be prohibited within 500 feet of natural undeveloped open space areas as designated on the Open Space map (Figure 20).*

DevStd BIO-O-1.5: *The edges of designated undeveloped natural open space areas shall be clearly delineated and fenced where necessary to protect resources both during construction and, when appropriate, over the life of the project. Long term fencing shall be designed to accommodate wildlife passage where appropriate.*

DevStd BIO-O-1.8: *Where new development eliminates important onsite habitat (e.g. coastal sage scrub, grasslands, riparian habitat and wetlands), County shall require development to restore or enhance like-kind habitat either onsite or offsite. If restoration sites are limited or unavailable, County shall require payment of adequate fees into a mitigation bank program acceptable to County to permanently protect a comparable or greater amount of created or restored habitat elsewhere within the OPA.*

Policy BIO-O-2: *Consistent with necessary flood control practices, natural stream channels and riparian vegetation in Orcutt shall be maintained in an undisturbed state in order to protect banks from erosion, enhance wildlife passageways, and provide natural greenbelts, unless this would prevent reasonable development of a property.*

Policy BIO-O-3: *Established native trees in designated open space areas shall be protected. Established native trees in developable areas shall be incorporated into the site landscaping plan to the greatest degree feasible except where it would interfere with reasonable development of a property. Native trees shall be considered established if they are six feet in height.*

DevStd BIO-O-3.1: *To the maximum extent feasible, development shall be designed to avoid damage to established native trees (e.g., oaks) by incorporating setbacks, clustering, or other appropriate methods. Areas protected from grading, paving, and other disturbances shall include the area 6 feet outside of established native tree driplines, unless this distance would interfere with reasonable development of a property. Where native trees are removed, they shall be replaced in a manner consistent with County standards.*

Policy BIO-O-4: *Non-native trees (e.g., eucalyptus groves and windrows) that provide known raptor nesting or key roosting sites shall be protected; non-native specimen trees shall be protected to the greatest degree feasible except where it would interfere with reasonable development of a property. Non-native trees of less than 25 inches in diameter at breast height do not qualify as specimens for this Policy.*

DevStd BIO-O-4.1: *Where non-native specimen trees are removed for development the County should consider replacement with native trees.*

Policy BIO-O-5: *New facilities in Orcutt, including roads, bikepaths/trails, sewer lines and retention basins, shall to the maximum extent feasible be sited and designed to avoid disruption of significant natural resources within designated natural undeveloped open space areas, minimize removal of significant native vegetation and trees and provide for reasonable levels of habitat restoration for significant habitats disrupted by construction.*

DevStd BIO-O-5.1: *Road construction shall minimize filling within creeks, stream corridors and wetlands and avoid or minimize removal of riparian vegetation. To the maximum extent feasible, bridges (rather than culverts) shall be required over all major creeks and wildlife corridors. Such bridges shall be designed to facilitate wildlife passage by providing at least 6 feet of vertical clearance and locate support structures outside of creekbanks, if feasible. Crossings of tributaries and drainages should use bridges if a bridge would avoid or substantially reduce impacts to sensitive habitat and sediment buildup. Road projects should also preserve the hydrologic connectivity between wetlands, and between wetlands and upland areas.*

DevStd BIO-O-5.2: *In designated open space areas, roadway segments (e.g., Union Valley Parkway and E Street) shall be designed in consultation with P&D, the Park Department, and appropriate federal and state agencies to allow wildlife passage through provision of appropriately placed bridges and/or culverts, and shall prohibit all night lighting in designated open space corridors except as necessary for public safety (e.g.. intersections, trailheads or*

crossings). Light "spill over" should be minimized by directing lighting away from the open space area, the use of hoods, and landscape screening (with native species) along the road.

DevStd BIO-O-5.3: *Multi-use trail construction should avoid removal of riparian vegetation to the maximum extent feasible. The Orcutt Creek multi-use trail shall be set back a minimum of 50 feet from the outside edge of riparian vegetation or the top-of-bank (whichever is further), unless this would make the multi-use trail link infeasible. Trail construction shall include riparian restoration between the edge of existing native vegetation and the bicycle path. Trail lighting should be directed away from the creek.*

DevStd BIO-O-5.4: *Trails should follow existing dirt road and trail alignments and utilize existing bridges where feasible. Where this is not possible, prior to final trail alignment proposed trail routes should be surveyed and rerouted where necessary to avoid sensitive species, subject to final approval by P&D) and the Park Department. All trails shall be sited and designed to avoid or minimize impacts to sensitive resources, areas of steep slopes and/or highly erosive/sandy soils, where feasible. Developers shall find sign installation along certain trails (as identified in the Multi Use Trail Guidelines) providing educational and interpretive information and advising dog owners to keep their dogs out of sensitive habitats.*

DevStd BIO-O-5.6: *Excavated fill for retention basin construction shall not be placed within important natural resource areas. Areas adjacent to or within habitats which are disturbed during construction shall be revegetated with appropriate native species. All sensitive habitat areas adjacent to proposed detention basins shall be fenced before grading begins to prevent disturbance and stockpiling in these areas.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-4*: The area depicted in Figure KS21-1 shall remain in natural, undeveloped open space. No development except trails or a roadway to parcel 113-250-17 and/or the existing parking lot shall be permitted within this open space and no structures shall be permitted within 50 feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.*

ANALYSIS: ***CONSISTENT.*** As proposed, the Project would result in the temporary and permanent loss or reduction of several habitat types; however, the Project has been sited and designed to avoid sensitive habitats to the maximum extent feasible. The project proposes designating over 51% of the site as undisturbed open space in accordance with the Open Space Plan of the Orcutt Community Plan to protect the identified resources. Native trees within the open space areas would be preserved. The majority of trees within the areas of disturbance would be saved to the maximum extent possible. Implementation of the Open Space Habitat Management Plan (OSHMP) and Mitigation Measures BIO-1.1, BIO-1.2.1, BIO-1.3.1, BIO-1.3.2, BIO-1.5, BIO-2.2, BIO-2.3, and BIO-2.4 would ensure that impacts to native habitats such as coast live oak trees, purple needle grassland, perennial rye grass fields, coyote brush scrub, coastal sagebrush scrub, and wetland/riparian habitat are minimized and that habitat is restored at ratios equal to or greater than the resources lost, providing further natural resource protection. The project would also include protective fencing during construction activities to further ensure sensitive resource protection.

The Neighborhoods Specific Plan incorporates lighting standards that require lighting fixtures to have the minimum height and intensity needed for security purposes, be low glare, and be directed downward or shielded to prevent spill-over in adjacent open space areas. Landscaping for the project would include the use of drought tolerant, locally native plant species. The planting of highly invasive weedy plants (e.g., iceplant, pampas grass, veldt grass, Monterey pine, eucalyptus, spiny clotbur, and Australian fireweed) is not proposed. The proposed Project would impact 79.19 acres of non-native grassland on site. As the botanic value of non-native grasses and common

herbaceous species is considered low, the permanent loss of the non-native grassland on the Project site would be an adverse, but less than significant impact.

Development Standard KS21-4 requires the area depicted in Figure KS21-1 of the OCP to remain in natural, undeveloped open space with the exception of trails or roadways. It also requires that no structures be permitted within 50 feet of the top of the creek bank and that the 50-foot setback be delineated by a low fence and plantings of native trees and shrubs. The proposed Project designates the areas depicted in Figure KS21-1 in the 1997 OCP as undisturbed open space, and provides an additional 72 acres of undisturbed open space. Existing drainage and wetland will remain in open space and protected with a 50-foot setback with a low fence and plantings of native trees and shrubs. Implementation of Mitigation Measures BIO-2.2, BIO-2.3, and BIO-2.4 would ensure impacts to wetland and riparian habitat from sewer main line construction are less than significant.

The Project would convey its storm water drainage to retention basins onsite. The project would implement the required SWPPP to control the discharge of pollutants, including sediment, into local surface water drainages from construction activities. The SWPPP is designed to minimize water quality degradation through storm water monitoring, BMPs, erosion control measures, and spill prevention and containment measures.

The Specific Plan contains conceptual plans for each neighborhood development as well as the recreational areas, trails, fences, and open spaces. Implementation of Specific Plan development standards and Mitigations Measures BIO-3-1.1, BIO-3-1.2, BIO-3-1.3, BIO-3-1.4, BIO-3-1.5, BIO-3-1.6, and BIO-3.2b-3 would ensure protection of wildlife during construction and post-construction. As discussed above, the project would include an additional 72 acres of protected undisturbed open space and restoration of native habitat onsite, maximizing contiguous natural open space and ensuring that habitat connectivity and wildlife corridors are maintained on site. Additionally, a split rail fence is proposed to delineate the open space and urban interface, where access roads cross wildlife corridors, and around the existing drainage and creek areas on site. The split rail fence allows free passage for wildlife. A barrier-type view fence would be constructed between residential lots and open space. This fence would limit access for wildlife into the residential areas as well as limit the ability for domestic pets to go into the open space.

Biological surveys conducted for the proposed Project identified bird and other species (i.e., Monarch butterflies) nesting or roosting in non-native eucalyptus trees and Monterey Pine trees on the site. Non-native trees used as roosting and/or nesting sites would be protected to the maximum extent feasible. Implementation of Mitigation Measure BIO-1.5 would restore non-native habitat with native trees on site. Implementation of Mitigation Measure BIO-3-1.2 would ensure eucalyptus tree impacts occur outside the Monarch butterfly autumnal and over-wintering season. Mitigation Measure BIO-2-1.6 requires a preconstruction survey for roosting bats and would ensure the development of avoidance measures. Mitigation Measure BIO-3.2b-3 requires nesting bird surveys prior to ground disturbance and a 300-foot “no construction zone” (500 feet for raptors) during construction activities near each identified nest site, would ensure that impacts to nesting and foraging habitat remain less than significant.

The Specific Plan includes development standards for trail locations and setbacks to avoid damage to native habitats. These trails generally follow existing trail alignments on the Project site. Trails would not be sited within 50 feet of riparian vegetation. In accordance with Policy BIO-O-5, the proposed multi-use trail and other recreational infrastructure (i.e., signage, fencing, etc.) have been sited and designed to avoid the removal of significant native vegetation and trees, such that the potential disruption of biological resources caused by increased human presence on these trails would be minimized. Therefore, the project is *consistent* with these Policies and Development Standards.

Orcutt Community Plan – Risk of Upset / Hazardous Materials

Policy RISK-O-1: *The County shall minimize the risk to public safety associated with oil and gas activity.*

DevStd RISK-O-1.1: *Parcels listed in Table 41 (of the OCP) shall be inspected by County Petroleum Office personnel to determine the existence of hazardous substances on the property or immediately abutting properties prior to County acceptance of an application for development.*

DevStd RISK-O-1.2: *In the event that past oil activity or potential hazardous substances are uncovered during grading or construction-related activity, such activity should be suspended immediately until a Phase II Environmental Site Assessment and appropriate remedial action has been completed.*

DevStd RISK-O-1.3: *Development should be sited and designed to include remedial and/or avoidance measures which may include actions such as setbacks and/or excavation as determined appropriate by a Phase II study. Any remediation plan shall include requirements that soil undergoing remediation must be tarped and not placed within the viewshed of the public or adjacent residents, where feasible.*

DevStd RISK-O-1.4: *New habitable development shall be setback a minimum 25 feet from known oil and gas-related pipeline rights-of-way unless a project specific risk assessment indicates closer development is appropriate.*

Policy RISK-O-3: *The County shall minimize the risk to public safety associated with hazardous materials.*

DevStd RISK-O-3.2: *The County should require development involving the transportation of hazardous materials to prepare a Comparative Route Assessment, determining the route with the least risk and designate that route as the preferred transportation corridor.*

Orcutt Community Plan Key Site 21 Site Specific Development Standard

DevStd KS21-7*: Residential units adjacent to the existing golf course should be designed to include private outdoor areas (e.g.: landscape buffering) and ensure safety from stray golf balls. Development shall be designed to facilitate pedestrian access to the golf course and accommodate continued use of the public golf course.*

DevStd KS21-10*: The layout and design of the development should be compatible with golf course actions and minimize risks to occupants and visitors from golf course activity.*

ANALYSIS: ***CONSISTENT.*** No residential development is proposed within the vicinity of known oil and gas related pipelines. Therefore, future development at this site is ***consistent*** with these policies and development standards.

Orcutt Community Plan – Fiscal Policies and Development Standards

Policy-FSCL-O-1: *The County shall ensure that adequate funding is available for the construction of public infrastructure and facilities as identified in the Orcutt Community Plan and the Public Infrastructure Financing Program.*

Policy-FSCL-O.2: *The County shall strive to ensure that funding is available for the operation and maintenance of public facilities in the community of Orcutt.*
Devstd-FSCL-O-2.2: *All development should be required to pay its fair share of the cost of operation and maintenance of public facilities.*

Devstd-FSCL-O-2.3: *Any development approved after community plan adoption and prior to completion of the Public Infrastructure Financing Program shall be required to participate in maintenance funding mechanisms adopted as part of that program, and must agree to pay those on- going fees before issuance of Building Permits.*

ANALYSIS: *CONSISTENT.* The Project site has been annexed into the Orcutt Communities Facilities District. The project conditions of approval would ensure that the project pays all applicable development impact mitigation fees, including Orcutt area fees. Payment of the Orcutt area fees would ensure that funding is available for the operation and maintenance of public facilities in the community of Orcutt. With the inclusion of project conditions of approval, the project is ***consistent*** with these policies and development standards.

Key Site 21 Policies and Development Standards

Policy KS21-1*: Parcel 113-250-14 is designated Open Space and zoned REC. The remainder of Key Site 21 is designated PD and Resort Visitor Serving Commercial and is zoned PRD (maximum 150 units). Any proposed development on KS-21 shall comply with the following development standards.*

DevStd KS21-1*: No applications for development shall be accepted prior to approval of a Specific Plan for the entire site.*

DevStd KS21-2*: Any Specific Plan application shall indicate the location of the residential units and may indicate the location of up to 20 acres of Resort Visitor Serving Commercial uses. For every acre of Resort Visitor Serving use proposed, the maximum allowable number of residential units shall be decreased by four. If the full 20 acres of commercial is development, the maximum number of residential units will be 70. Any proposed Resort Visitor Serving uses shall be integrated/coordinated with the preexisting golf course uses.*

DevStd KS21-3*: If a Specific Plan is adopted which includes Resort Visitor Serving Commercial, the County shall rezone portions of the property to CV as necessary to be consistent with the adopted Specific Plan.*

ANALYSIS: *CONSISTENT.* The Specific Plan proposes a maximum buildout of 146 units, and does not propose Resort Visitor Serving Commercial uses. Therefore, the Project is ***consistent*** with these policies and development standards.

References

Kear, Jordan, P.G., C.Hg. and Timothy Becker, PG. 2018. *Water Well Feasibility for Orcutt Community Plan Key Site 21, Portion B, Memorandum to Anthony Wells*. Kear and Becker. February 2

3.9 NOISE

This section addresses the existing noise associated with the project site and surrounding area and changes that would result from buildout of the 2017 Neighborhoods Specific Plan.

3.9.1 Previous CEQA Review

Orcutt Community Plan

Evaluation of noise in the Orcutt Community Plan focused on motor vehicles, aircraft, construction activities, and commercial/industrial operations. The OCP used several measurements of sound including:

• Decibels, dB. A logarithmic scale measuring fluctuation of air pressure above and below atmospheric pressure. Because this is a logarithmic scale, a doubling of sound energy results in a 3 dB increase in noise levels; however, up to a 3 dB increase in noise levels is not typically perceived;

• A-weighted decibels, dB(A). The decibel logarithmic scale that more heavily weights frequencies to which the human ear is sensitive; and

• Community Noise Equivalent Level, CNEL. A decibel scale that penalizes noise that occurs during the evening (7 pm to 10 pm) by 5 dB and during the night (10 P.M. to 7 A.M.) by 10 dB to account for increased sensitivity to noise after dark.

The Orcutt Community Plan (OCP) Environmental Impact Report (EIR) identified *significant and unavoidable* (Class I) noise impacts associated with substantial noise level increase of 3 dB(A) or greater on secondary roadways, noise levels of 65 dB(A) or greater along major travel corridors, and the potential increase of airport noise levels and extension of the 65 dB(A) noise contour further south into the Orcutt Planning Area (OPA).

3.9.2 Relevant Project Changes

The location of the proposed Specific Plan residential lots would be generally consistent with conceptual Key Site 21 development analyzed in the OCP EIR. The following Specific Plan refinements would affect the intensity of impacts previously identified for Key Site 21.

- The proposed 146 single-family homes are four fewer than conceptually approved for Key Site 21.
- The proposed 97 acres of undisturbed open space are three times greater than conceptually protected in the 25-acre Key Site 21 Open Space Overlay.

Setting

Regulatory Setting

No changes to the Regulatory Setting, including the County of Santa Barbara Comprehensive Plan, or Land Use and Development Code, have occurred since 1997 that affect the analysis of noise. As in 1997, noise impacts would be considered significant if:

NOI-1: A proposed development that would generate noise levels in excess of 65 dB(A) CNEL and could affect sensitive receptors would generally be presumed to have a significant impact.

NOI-2: Outdoor living areas of noise sensitive uses are subject to noise levels in excess of 65 dB(A) CNEL would generally be presumed to be significantly impacted by ambient noise. A significant impact would also generally occur where interior noise levels cannot be reduced to 45 dB(A) CNEL or less.

NOI-3: A project will generally have a significant effect on the environment if it will increase substantially the ambient noise. A significant impact would also generally occur where interior noise levels cannot be reduced to 45 dB(A) CNEL or less.

NOI-4: Noise from grading and construction activity proposed within 1,600 feet of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals or care facilities, would generally result in a potentially significant impact. According to EPA guidelines, average construction noise is 95 dB(A) at a 50 feet distance from the source. A 6 dB drop in noise occurs with a doubling of the distance from the noise source. Therefore, locations within 1,600 feet of the construction site would be affected by noise levels over 65 dB(A).

Physical Setting

No changes to the Key Site 21 physical setting have occurred since 1997. The proposed Project site is currently undeveloped open space to the east and west of the 18-hole public Rancho Maria Golf Club (RMGC), adjacent to the proposed Willow Creek and Hidden Canyon neighborhoods. Agricultural row crops are to the north, east and west of the proposed Project site, while low intensity residential is to the south. The OCP FEIR (pg. 5-10.7) stated that: “The ambient noise environment in west Orcutt is primarily affected by vehicle traffic along Highway 135, Highway 1, Black Road, and Clark Avenue. Due to the semi-rural and rural land uses in this portion of the Orcutt Planning Area, ambient noise levels are relatively low.”

3.9.3 Impact Analysis

Methodology

No change to the County of Santa Barbara Noise Guidelines, including thresholds of significance, has occurred since 1997 that affect the analysis of noise.

Project Impacts and Mitigation Measures

Potential impacts on existing noise associated with the project site and surrounding area and changes to noise levels as a result of the buildout of the 2017 Neighborhoods Specific Plan are discussed below.

Impact NOI-1: *Specific Plan development would not result in a significant increase of noise exceeding 3 dB(A) CNEL impacting RMGC sensitive receptors along SR 1 or adjacent to internal secondary roadways.*

1997 Impact Analysis

The 1997 EIR found that OCP Buildout would result in increased traffic volumes on major roadways, which would potentially expose sensitive noise receptors to significant noise levels of 65 dB(A) CNEL or greater. This community-wide impact would be *significant and unavoidable* (Class I). Relative to Key Site 21, the EIR identified that existing traffic on SR 1 north of Clark Road generated noise levels adjacent to the RMGC exceeding 65 dB(A) CNEL (OCP FEIR, page 5.10-4). OCP Buildout was projected to increase this noise level by 3.3 dB(A) (CNEL) to 68.7 dB(A) (CNEL) (OCP FEIR, page 5.10-4), based on the increase of traffic along SR 1 of approximately 4,500 ADT (OCP FEIR, page 5.9-30). This was considered a *significant* impact on noise.

Mitigation Measures and Residual Impacts

The following mitigation measure was identified:

NOI 1.1 Development projects shall locate sensitive land uses beyond the roadway 65 dB(A) CNEL contours to the greater extent possible.

This OCP buildout transportation noise would result in a residual s*ignificant and unavoidable impact* (Class I). The specific contribution of Key Site 21 buildout to this impact was not analyzed or quantified.

2018 Impact Analysis

The proposed Neighborhoods Specific Plan would result in four less residential units than associated with the OCP Key Site 21 buildout, and undeveloped open space areas between the development and RMGC would be increased by 72 acres. Transportation-related noise impacting existing RMGC sensitive receptors and activity adjacent to SR 1 would be slightly reduced relative to Key Site 21 projected buildout. The proposed Specific Plan would generate 1,320 average daily trips (ADT) on

SR 1 passing the RMGC (Stantec 2016). Impacts related to residential noise would be similar to the approved OCP Buildout. The proposed Specific Plan contribution to the OCP Buildout traffic noise on SR 1 (1,320 of the total 4,500 ADT on SR 1) would be approximately 1 dB(A) CNEL, less than the 3 dB(A) CNEL significance threshold. Therefore, Specific Plan buildout vehicular activity would have an *adverse, but less than significant* (Class III) impact on noise impacting the RMGC activities along SR 1.

The noise impact from residential traffic on internal Specific Plan driveways would be individually less than 1 dB(A) CNEL: the 900 ADT in the Willow Creek Neighborhood would generate an estimated 0.7 dB(A) CNEL; and the 560 ADT in the Hidden Valley Neighborhood would generate an estimated 0.4 dB(A) CNEL. These noise levels impacting RMGC activities would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impacts

As noise impacts resulting from Specific Plan transportation buildout on RMGC activities would be less than significant, no mitigation measures are necessary. Residual impacts on noise would be *adverse, but less than significant* (Class III).

Impact NOI-2: *The proposed Specific Plan residential buildout would not be exposed to exterior residential noise levels exceeding 65 dB(A) CNEL, and exposed to indoor living areas when doors and windows are closed that would be subject to noise levels exceeding 45 dB(A) CNEL.*

1997 Impact Analysis

The OCP FEIR found that increased roadway noise generated by Plan buildout would have the potential to exceed 65 dB(A) (CNEL) on major roadways, including SR 1 that could expose future residential units to exterior noise levels exceeding Noise Element thresholds of 65 dB(A) (CNEL) and interior noise levels of 45 dB(A) CNEL. As noted in Impact NOI-1, the noise level along SR 1 in the vicinity of the Specific Plan area would be increased to 68.7 dB(A) CNEL. The 65 dB(A) (CNEL) contour would extend 95 feet south from the centerline of SR 1 within Key Site 21 (OCP FEIR page 5.10-14). OCP Buildout would result in a potential community-wide impact on residential exterior noise that was considered *potentially significant*.

Mitigation Measures and Residual Impacts

The OCP identified the following mitigation measures:

NOI 2.1: Noise-sensitive uses proposed in areas exceeding 65 dB(A) CNEL shall be designed so that interior noise levels attributable to exterior sources do not exceed 45 dB(A) CNEL when doors and windows are closed.

NOI 2.2: Noise-sensitive uses proposed in areas exceeding 65 dB(A) CNEL shall be designed that noise levels in exterior living spaces will be less than 65 dB(A) CNEL.

The mitigation measures identified above were generally considered to feasibly reduce noise level impacts at sensitive uses along existing and planned roadways to within County noise standards.

Due to localized site constraints, certain Key Sites were considered to have insufficient area to afford a large degree of flexibility in siting units away from noise sources. Where development projects would be unable to fully mitigate noise impacts, residual impacts were considered *significant and unavoidable* (Class I).

2018 Impact Analysis

The nearest proposed Willow Creek Neighborhood residential lots would be over 800 feet south of SR 1, and Hidden Valley Neighborhood residences a minimum of approximately 600 feet south of SR 1. The OCP FEIR identified that the 55 dB(A) CNEL noise contour under Plan buildout would extend 418 feet south from the SR 1 centerline in the vicinity of the Specific Plan (Key Site 21) area (OCP FEIR page 5.10-14). Therefore, the nearest Willow Creek residences would be exposed to exterior noise levels of approximately 49 dB(A) CNEL, and the nearest Hidden Valley residences to levels approximately 52 dB(A) CNEL (given that noise attenuates or is reduced by 6 dB(A) with a doubling of the distance from the source). Exterior noise impacts would be *adverse, but less than significant* (Class III).

Interior noise levels within the residences closest to SR 1 would potentially be exposed to noise levels exceeding 45 dB(A) CNEL. These impacts would be *potentially significant*.

Mitigation Measures and Residual Impacts

As the exterior noise impacts on Specific Plan buildout resulting from SR 1 would be less than significant, no mitigation measures are necessary. The residual impact on exterior noise levels would be *adverse, but less than significant* (Class III).

The following standard measure would apply to Specific Plan residences located closest to SR 1.

NOI-2.1: Homes facing SR 1 shall incorporate solid core doors and double-paned glass windows with other suitable noise-attenuating design to ensure that interior noise exposure is maintained at 45 dB(A) CNEL or below.

Residual interior noise impacts on residences closest to SR 1 would be *significant but feasibly mitigated* (Class II).

Impact NOI-3: ***Specific Plan residential buildout would substantially increase ambient noise levels impacting RMGC sensitive receptor activity.***

1997 Impact Analysis

The OCP FEIR did not specifically address noise generated by Plan Buildout that had the potential to substantially increase ambient levels impacting adjacent existing sensitive receptors. OCP FEIR analysis focused on the potential for future development to be impacted by this noise. Impact NSE-1 identified that buildout under the Community Plan could result in potentially significant noise impacts due to substantial noise level increases of 3 dB(A) or greater on secondary roadways

throughout Orcutt. This was considered a potentially *significant but feasibly mitigated impact* (Class II) and was addressed by mitigation NOISE-1.1 as explained above.

2018 Impact Analysis

Potential outdoor backyard residential activities facing the RMGC fairways could periodically generate noise such as recorded and/or amplified music and/or larger group conversation exceeding 65 dB(A). Landscaping maintenance using power equipment including mowing, trimming, and blowers would potentially generate periodic noise levels exceeding 65 dB(A). The frequency and intensity of this noises is impossible to predict with certainty, but relative to the existing golf course ambient noise levels, they would be substantial and *potentially significant*.

Mitigation Measures and Residual Impacts

NOI-3.1: Outdoor residential social activities in backyards facing RMGC fairways shall avoid the use of recorded and/or amplified music. If such music is played at social functions, it shall be limited to indoor use only with doors facing the RMGC fairways kept closed.

NOI-3.2: Residential landscaping and maintenance activity involving power equipment (e.g., lawn mowers, hedge and tree trimming, and cleanup) shall be limited to the hours of 8 AM to 5 PM on weekdays and avoid all state Holidays (e.g., Thanksgiving, Christmas, Memorial Day, Independence Day, and Labor Day).

Incorporation of these measures would reduce the potential for periodic substantial noise generation impacting RMGC sensitive receptor activities to *significant, but feasibly mitigated* (Class II).

Impact NOI-4: ***The proposed project would result in substantial short-term construction related noise.***

1997 Impact Analysis

The OCP FEIR determined that project construction would result in *potentially significant* short-term impacts on noise sensitive receptors located within 1,600 feet of proposed Plan site preparation activity areas.

Mitigation Measures and Residual Impacts

The following measures would address short-term construction noise:

NOI-4.1: Construction activity for site preparation and for future development shall be limited to the hours of 8 AM to 5 PM, Monday through Friday. No construction shall occur on State Holidays (e.g., Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours.

NOI-4.2: Noise attenuation barriers and muffling of grading equipment shall also be required as necessary to reduce impacts within 1,600 feet of sensitive receptors.

Construction equipment generating noise levels above 95 dB(A) shall also potentially require additional mitigation.

Incorporation of these measure would mitigate the short-term noise impacts during construction to *significant but feasibly mitigated* (Class II).

2018 Impact Analysis

Buildout of the Neighborhoods Specific Plan would result in four less units than approved in the 1997 OCP. Impacts related to noise would be similar to the approved OCP. Construction activities within 1,600 feet of RMGC sensitive receptor activity would have the potential to generate *short-term significant* noise impacts.

Mitigation Measures and Residual Impacts

Implementation of measures NOI-4.1 and NOI-4.2 would apply to the Neighborhoods Specific Plan, similar to of the approved 1997 OCP Buildout. Incorporation of these measures would mitigate the short-term impact during construction to *significant but feasibly mitigated* (Class II).

3.9.3 Cumulative Impacts

1997 Impact Analysis

Reasonably foreseeable projects in combination with the proposed project were considered to contribute to traffic-related noise levels that would increase exterior noise levels in some areas by more than 3 dB(A) and would result in greater than 65 dB(A) ambient noise in other areas. The cumulative community-wide impact on increased noise levels would be *significant and unavoidable* (Class I).

2018 Impact Analysis

Buildout of the Neighborhood Specific Plan would result in the four units less than that associated with the approved 1997 OCP. Cumulative impacts and the proposed Project's contribution to these impacts related to noise would therefore be equivalent or less than to the approved in the 1997 Orcutt Community Plan.

References

Stantec. 2016. *Neighborhoods of Willow Creek and Hidden Canyon (Key Site 21) Traffic and Circulation Study, County of Santa Barbara, CA.* December 19.

3.10 PUBLIC SERVICES

This section addresses potential impacts on fire and police protection, solid waste, wastewater, schools, and library services that could result from buildout of the 2017 Neighborhoods Specific Plan. Potential impacts on fire protection are discussed in Section 3.6, *Fire*.

3.10.1 Previous CEQA Review

Orcutt General Plan

The Orcutt Community Plan (OCP) EIR identified *significant and unavoidable* (Class I) impacts on police protection associated with an inadequate number of police officers to serve OCP build out populations, and development outside of the existing Sheriff's Department five-minute response area. In addition, build out of the OCP was determined to result in *significant and unavoidable* impacts (Class I) solid waste impacts resulting from residential development that would generate substantial amounts of solid waste and increase the need for a new regional landfill. The OCP FEIR identified *significant and unavoidable impacts* (Class I) on wastewater resulting from potential flows at build out exceeding plant capacity, and *significant, but feasibly mitigated* (Class II) wastewater impacts associated with an increase in total dissolved solids (TDS) levels.

OCP build out was determined to have *significant and unavoidable* (Class I) impacts on educational facilities resulting from capacity exceedance of Ernest Righetti High School, and *significant, but feasibly mitigated impacts* (Class II) associated with exceedance of capacity at Orcutt Union School District (OUSD) and generating the need for one to two additional elementary schools, but with a lack of school sites and funding to purchase land and infrastructure. The OCP FEIR identified *significant and unavoidable* (Class I) impacts on library services due to exceedance of library service capacity and *significant, but feasibly mitigated impacts* (Class II) resulting from a decrease in library capacity due to inadequate funding. Specific Key Site 21 buildout impact analyses were not performed for police protection, solid waste, wastewater, schools, and library services.

Development standards were incorporated in the OCP to minimize the overall and site-specific impacts on public services. OCP Development Standard RR-O-1.3 states that all residential and commercial development shall establish a recyclable material pickup area. DevStd. RR-O-1.4 requires that all developers provide recycling bins at construction sites. Development Standard WW-O-2.1 states the applicable conditions under which the County will accept Can-and-Will-Serve letter for all new developments. Development Standard WW-O-3.1 requires onsite filtration systems for developments contributing to wastewater flows and DevStd. WW-O-3.3 requires the County to make findings that a project's effluent will meet Regional Water Quality Control Board (RWQCB) discharge standards. OCP Development Standard SCH-O-1.2 states that if a Mello-Roos Community Facilities District (CFD) is formed, all applicants for new developments that impact schools in the OPA must agree to participate in the CFD or demonstrate anathematize method for mitigation. Development Standard LIB-O-1.2 requires a library mitigation fee on developments to fund the construction of a new library facility.

The following are potentially significant and significant and unavoidable impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact POL-1: ***Inadequate Number of Police Officers***. At buildout, the existing substandard ratio of police officers to residents served would be dramatically increased, from 1:1,591 to 1:2,377, resulting in *potentially significant* impacts to public health and safety due to fewer responding police officers and potentially longer response times.

Impact POL-2: ***Development outside of existing five-minute response area***. OCP Buildout would extend urban development into areas that currently are outside of the Sheriff's Department five-minute response zone, resulting in *potentially significant* impacts to the public health and safety of future and existing residents due to longer waits for police services.

Impact SW-1: ***Increase in solid waste from 10-year buildout***. Under the 10-year scenario, the OCP community would generate approximately 8,970 tons/year of solid waste (3,070 units x 2.87 residents/unit x 0.95 + 600,000 s.f. x 0.001). Even implementation of source reduction and recycling measures the residual impact (minimized by 50 percent) would exceed the thresholds for solid waste, resulting in a *potentially significant* impact and creating a substantial contribution to the landfill exceeding capacity.

Impact SW-2: ***Increase in solid waste from full buildout***. The full build-out scenario would generate approximately 19,476 tons/year of solid waste (6,300 units x 2.87 residents/unit x 0.95 + 2.3 million sq. ft. x 0.001). Implementation of AB 939 could reduce the solid waste stream by 50%, resulting in approximately 9,738 tons/year of solid waste being generated from full buildout of the Community Plan, which would still be considered a *potentially significant* impact by contributing substantially to the landfill exceeding capacity.

Impact SW-3: ***Increased need for a new landfill***. The estimated increases in waste stream from both the 10-year and full buildout scenarios would reduce the useable life of the Santa Maria Landfill. The current estimate is that the Santa Maria Landfill has a life expectancy of thirteen years. Development of the draft Community Plan would further reduce the life expectancy of the Santa Maria landfill. This would be considered a *potentially significant* impact due to the difficulty in siting new landfills.

Impact WW-1: ***Increase in TDS***. The development of up to 6,300 new homes with potentially 6,300 additional salt water softeners and low-flow fixtures would increase the TDS level and could create *potentially significant* impacts to groundwater quality due to the degradation of the Laguna County Sanitation District's effluent.

Impact WW-2: ***Additional trunk and feeder lines***. Potential development allowed under the Community Plan would occur where no trunk or feeder lines currently exist or are proposed (Sites #12, 15, 22, and 33), creating *potentially significant* impacts to the provision of public services due to the lack of access to public sewer service.

Impact WW-3: ***Development outside the sewer district's boundary***. The OPA is larger than the service area of the LCSD. New development is proposed in several areas not currently served by the LCSD, creating *potentially significant* impacts to the provision of public services due to the lack of access to public sewer service and the increased potential demand for septic systems.

Impact WW-4: *Potential flows exceed plant capacity*. Estimated wastewater demand for both the 10-year and full buildout scenarios could exceed the treatment capacity of the current plant, creating *potentially significant* impacts to provision of adequate public services due to potential delays in construction of new development until a new treatment plant is constructed or the current plant expanded.

Impact WW-5: *Increase in grease or chemical levels*. The development of restaurants, gas stations, car washes, manufacturing facilities and so on would increase the level of greases, oils and chemicals in the wastewater stream, creating *potentially significant* impacts to the LCSD's ability to adequately treat wastewater flows due to a lack of appropriate filtration systems at the treatment plant.

Impact SCH-1: *Exceedance of Orcutt Unified School Districts (OUSD)'s permanent/expanded school capacities*. Total enrollment in the OUSD is projected to increase by 602 to 1,170 new students over the next 8 to 10 years. This increase in enrollment would create a *potentially significan*t impact to elementary and junior high school facilities by exceeding both the existing permanent and "expanded" capacities of the OUSD's schools, causing overcrowding, the need for new facilities, and a potential decrease in the quality of education.

Impact SCH-2: *Capacity exceedance at Righetti High/need for new high school*. Development projected to occur over the next ten years would increase enrollment at Righetti High by an estimated 305 students causing that school to further exceed its enrollment capacity, contributing substantially to *significant and unavoidable cumulative impacts* within the Santa Maria Joint Union High School District (SMJUHSD), which projects total enrollment increases of 48% by the year 2003-2004. Total increases in enrollment would create the need for a new high school.

Impact SCH-3: *Need for 1-2 additional elementary schools*. Both the total amount of projected increase in enrollment (602-1,170 students) and the forecasted location of new growth in areas outside of existing neighborhoods (i.e., Key Sites 12 and 22) would create a *potentially significant* impact to schools through the creation of demand for two new elementary schools, which the OUSD currently has no available potential sites and insufficient funding for construction of new schools.

I**mpact SCH-4: *Operational impacts***. Increased enrollment would create *potentially significant* impacts to Orcutt area students through increased overcrowding of facilities, increased student-teacher ratios, possible decreases in facility maintenance, equipment replacement, etc.

Impact SCH-5: *Exceedance of capacity at OUSD*: Full buildout of the proposed Orcutt Community Plan would generate a projected 2,400 K-8 students, approximately 2,000 more than can be accommodated at full expanded capacity of the Orcutt Union School District, creating *potentially significant* impacts to elementary and junior high school facilities by causing overcrowding, the need for new facilities and a potential decrease in the quality of education.

Impact SCH-6: *Exceedance of capacity at SMJUHSD:* Full buildout of the Orcutt Community Plan would generate a projected increase in enrollment of 624 new high school students to Righetti High causing that school to further exceed its enrollment capacity and contributing substantially to *significant and unavoidable cumulative impacts* within the SMJUHSD district through overcrowding, increased student-teacher ratio, and potential decreases in the quality of education.

Impact SCH-7: *Lack of school sites*. The School Districts serving the Orcutt Planning Area (OPA) currently own no additional land to construct new schools that meet the buildout needs of the Community Plan, creating *potentially significant* impacts to school facilities due to the difficulty in locating vacant or available sites of sufficient size in appropriate locations to serve the community.

Impact SCH-8: *Lack of funding*. The school districts serving the OPA currently do not have sufficient funds available to purchase land and build the facilities needed to accommodate OCP buildout, creating *potentially significant* impacts due to the overall inadequacy of current schools fees to fully mitigate the impacts of development (and the generation of new students).

Impact LIB-1: *Exceedance of library service capacity*. Full OCP buildout would generate approximately 18,000 new patrons that would increase library usage by approximately 50 percent, creating a further *significant and unavoidable* impact on existing inadequate library services.

Impact LIB-2: *Decrease in future level of service due to lack of funding*. The Santa Maria Public Library system serving the OPA currently does not have sufficient funds available to purchase land and build the facilities needed to accommodate the buildout of the Orcutt Community Plan, creating *potentially significant* impacts to libraries due to the overall inadequacy of current funding to fully mitigate the impacts of development.

3.10.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots for are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed small changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- The Neighborhoods Specific Plan would include payment of A.B. 1600 development impact mitigation fees for library and sheriff services.
- The Neighborhoods Specific Plan would be served by a public sewer connection to an existing LCSD 24-inch line by constructing a 1,000-foot long connection across Key Site 22 to the north of the Project site. The line would be constructed in an existing 20-foot wide easement.

Regulatory Setting Changes

The Community Facilities District (CFD) No. 2002-1 was established by the County under the Mello-Roos Community Facilities Act to address the ongoing maintenance and operation of certain public services and facilities associated with new development. The CFD would finance the maintenance of parks, parkways, open space, trails, and detention basins, as identified in the Fiscal Impact Report that was used as a basis for determining net cost impacts of new development. In addition, the CFD would finance operational costs associated with the additional demands on police protection services

resulting from project build out. Financing is provided by a three-tiered Special Tax. A Special Tax levy is collected on new developments within the CFD and is subject to annual cost adjustments.

Operating revenue provided to school districts is funded by local property tax revenue accrued at the state level and then allocated to each protocol district based on the average daily student attendance. However, physical improvements to accommodate new students come primarily from assessed development mandated by State Law. The School Facilities Legislation (California Government Code 65995) was enacted to generate revenue for school districts for capital acquisitions and improvements. SMJUHSD and OUSD can collect development fees based upon a state-required fee schedule. As a condition of development, a developer can be required to pay the statutory school fees in effect at the time of issuance of building permits to SMJUHSD and OUSD. However, mitigation is limited by state law. For projects which do not involve a legislative act, payment of standard fees is the maximum mitigation allowed.

As in 1997, a project would have a significant impact on public services if it would result in:

- a substantial adverse physical impact associated with the provision of new or physically altered governmental facilities; and/or
- the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for public services.

The following thresholds are used to determine the significance of impacts that would result from buildout of the Neighborhoods Specific Plan. With the exception of solid waste construction thresholds, no changes to these thresholds have occurred since 1997.

Police Protection

The County of Santa Barbara Thresholds and Guidelines Manual does not include significance thresholds for police protection. However, the Santa Barbara County Sheriff's Department (SBCSD) utilizes a standard service ratio of officer to resident of 1:1,200 and maximum response time of five minutes.

Solid Waste

The California Integrated Waste Management Act (AB 939), requires all municipalities in California to divert at least 50 percent of its solid waste from landfills. Pursuant AB 939, the County of Santa Barbara requires a reduction in solid waste generation for all new development projects in the County. The County of Santa Barbara Thresholds and Guidelines Manual indicates that a project is considered to have a significant impact on public services if:

- it creates more than 350 tons of construction and demolition debris, which is equivalent to the construction of 47,000 square feet of new residential buildings; and/or

- it would generate 5 percent or more of the expected annual increase in waste generation, thereby using a significant portion of the remaining landfill capacity. Based on an assumed 4,000 tons per year increase in solid waste generation, the numerical value associated with the 5 percent increase is 196 tons/year.

Wastewater

The County does not have project-specific thresholds for wastewater. However, on a cumulative basis, the EPA and the Regional Water Quality Control Board have a threshold for overall facilities capacity. They recommend a 75 percent capacity "check-point" threshold, which requires sewer districts to establish a schedule for necessary treatment plant upgrades (or replacement) and to submit this schedule to both the EPA and the RWQCB at such time as the average daily flow exceeds 75 percent of the design capacity of the existing facilities. Therefore, impacts to wastewater treatment would be significant if:

- project-generated wastewater causes a treatment plant's average daily flow to meet or exceed 75 percent of the plant's design capacity.

Schools

According to the County of Santa Barbara Environmental Thresholds and Guidelines Manual, a project would have a significant impact on school service if it would:

- generate sufficient students to require an additional classroom. This assumes 29 students per classroom for elementary and junior high and 28 students per classroom for high school, based on the lowest student per classroom.

This threshold is applied to school districts that are currently approaching, at, or exceeding their current capacity.

Library

The County does not have significance thresholds for library impacts. The demand for new libraries is typically based on a national standard of 0.6 sq. ft. per area resident; however, many jurisdictions use a figure of 0.5 sq. ft. per person. The state of California has established a standard ratio of $12.00 per area resident as the minimum funding necessary to meet the library service needs of a community.

Existing Setting

Based on most recent data by the Santa Barbara County Association of Governments (SBCAG), the population in Unincorporated Santa Barbara County was 133,417 in 2010. According to the 2016 U.S. Census Bureau American Community Survey, population in the Orcutt area is 30,109 residents. Level of service ratios would be based upon the Orcutt population estimate and capacity of public services facilities serving the OPA.

Police Protection

Police protection in the unincorporated portion of Santa Barbara County is provided by SBCSD. The California Highway Patrol (CHP) provides secondary police protection. The OPA is serviced by the SBCSD's Santa Maria Station located at 812-A West Foster Road in Santa Maria, approximately 3.2 miles from the project site. The Santa Maria Station serves approximately 900 square miles of unincorporated area in the County, including the area surrounding Santa Maria and Guadalupe as well as the communities of Orcutt, Gary, Sisquoc, Casmalia, Tepesquet, and Los Alamos (Lieutenant Clay Turner, personal communication 2018). Current permanent staffing is 22 officers (Lieutenant Clay Turner, personal communication 2018). Based on this value, the current service ratio is one officer per 1,368 residents in the Orcutt Area (1:1,368). This exceeds the County standard of 1:1,200 and represents a deficit in existing police protection services.

The approximate response time to the proposed Project site would vary based on call volume. Assuming officers are available to respond, the response time to the Project site would be approximately 5 minutes (Lieutenant Clay Turner, personal communication 2018). However, actual response time could vary from 5 to 30 minutes if officers are already out on call (Lieutenant Clay Turner, personal communication 2018). Backup police protection service is available from the CHP, the Santa Maria Police Department, and the Guadalupe Police Department on an as-needed basis (Lieutenant Clay Turner, personal communication 2018). Utilization of these services would help minimize potential response time to the Project site.

Solid Waste

Solid waste collection service in Orcutt is provided by Health Sanitation Service (HSS), a private refuse collection, recycling and disposal company. Solid waste generated in the area is disposed in the City of Santa Maria Landfill, the second largest landfill in the County located at the northeastern corner of the Santa Maria city limits, adjacent to the Santa Maria River.

The permitted capacity of the Santa Maria landfill is approximately 13.9 million cubic yards (CY), with a total remaining capacity of approximately 1.5 million CY (Herb Cantu, personal communication 2018). The landfill is estimated to reach capacity in 2022 (Herb Cantu, personal communication 2018). The Santa Maria Integrated Waste Management Facility will be operational in 2020 and will enable the City to phase out the use of the existing Santa Maria Landfill (Herb Cantu, personal communication 2018).

Wastewater

The Neighborhoods Specific Plan area would be served by the LCSD wastewater reclamation plant. Since 1997, the facility has been expanded to have a total treatment capacity of 3.7 million gallons a day. Currently, 1.6 to 1.7 million gallons a day are processed on average at the facility (Martin Wilder, personal communication 2018). A surplus of 1.3 million gallons a day is available at this facility.

The LCSD owns and maintains a 24-inch sewer line that generally runs east/west approximately 1,000 north of the Specific Plan area. The existing 24-inch line was designed to accommodate development of Key Site 21 as part of the OCP.

Schools

Key Site 21 is located within the Orcutt Union School District (OUSD) and the Santa Maria Joint Union School District (SMJUHSD). The existing conditions of public school facilities in the OPA have substantially changed since the 1997 OCP EIR. The OUSD has experienced student losses during recent years, which led to the May Grisham Elementary School being converted into a charter high school campus. In addition, SMJUHSD has recently built a new high school.

Neighborhoods Specific Plan would be served by Pine Grove Elementary School, Orcutt Junior High School, and Ernest Righetti High School. Table 3.10-1 shows current enrollment and enrollment capacity for these schools for the 2017-2018 school year.

Table 3.10-1. Key Site 21 Area School Enrollment

Schools	Enrollment	Enrollment Capacity	Percent Capacity Utilization
Pine Grove Elementary	529	621	85%
Orcutt Junior High	570	553	103%
Ernest Righetti High	2175	2,517[a]	86%

a. Includes permanent (1,518) and 37 portable classroom (999) capacity (Reese Thompson, personal communication 2018)

Library Services

OPA library services are provided by a branch location of the Santa Maria Public Library system at 175 Broadway. The Orcutt Branch Library is 4,507 square feet and is staffed by 2.23 full-time equivalent staff (Mary Housel, personal communication 2018). Given the population of 30,109 in 2016 for the Orcutt area, the library size is currently 10,547.5 square feet assuming the 0.5 sq. ft. per person standard. The library has 25,388 volumes and circulates 8,204 print and media items a month, which does not include electronic circulation (Mary Housel, personal communication 2018). The per capita operating budget for the Orcutt Branch Library for 2017 to 2018 is $8.20 (Mary Housel, personal communication 2018). Thus, the library is $3.80 below the state standard of $12.00 per area resident.

3.10.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact PS-1: Buildout of the Neighborhoods Specific Plan would increase demands on the Santa Barbara County Sheriff's Department (SBCSD).

1997 Impact Analysis

Buildout of the OCP would lead to a substantial increase from 1:1,591 service ratio to a 1:2,377 police service ratio, which would require 15 additional officers from 1997 levels. Additionally, several sites including Key Site 21 were found to be outside of the five-minute response zone. This impact was found be *significant and unavoidable* (Class I).

Mitigation Measures and Residual Impact

In addition to the development standards described in Section 3.10.1, the OCP identified measures that would minimize impacts to police services:

PS-1*:* The hiring of additional officers shall be phased with the additional population growth to provide a ratio of 1 officer to 1,200 persons. An additional 23 officers shall be hired by the County Sheriff's Department at full buildout of the project.

Based on projected buildout, police services were likely to not keep pace with development due to financial constraints. Thus, the shortage of patrol officers was considered *significant and unavoidable* (Class I) until funding would become available to provide for additional police services.

2018 Impact Analysis

Though there would be four fewer residences under the Neighborhoods Specific Plan than the OCP, the increase in population under buildout of the Neighborhoods Specific Plan would still place additional demand on currently inadequate police protection services. Based on average household size in the Orcutt Plan Area (3.22 per persons per unit), the proposed 146 units would generate 470 residents at the site. This would result in a degradation of the service ratio from 1:1368 to 1:1390, below County standards for level of police service. Though payment of A.B. 1600 fees would help fund additional services, the fees would not address the existing and future deficit in police protection services. Further, response times to the project site may exceed 5 minutes (Lieutenant Turner 2018, personal communication). Therefore, the impact to police protection services would be *potentially significant.*

Mitigation and Residual Impacts

PS-1.1: A development fee, subject to change based on Public Infrastructure Financing Program for the Orcutt Community Plan, shall be paid to the County of Santa Barbara

to offset costs of providing Sherriff Department services to the Specific Plan area. Payment of a development fee shall be necessary to receive project approval.

Despite payment of fees, impacts to police protection services would be *significant and unavoidable* (Class I) due to the inadequacy of existing and exacerbated service levels. This impact would be similar to that identified in the OCP FEIR.

Impact PS-2: ***Project development would result in substantial contribution to Santa Maria Landfill solid waste demands.***

1997 Impact Analysis

Full Buildout of the OCP would generated approximately 19,476 tons/year of solid waste. Implementation of AB 939 could reduce the solid waste stream by 50 percent, resulting in approximately 9,738 tons/year of solid waste. This would be substantially higher than the County threshold and would result in a need for a new landfill as it would reduce the useable life of the Santa Maria Landfill. Buildout was expected to reduce the life expectancy of the landfill.

Mitigation and Residual Impacts

The following mitigation measures have been developed to reduce the amount of waste going to the landfill and to increase and upgrade the recycling and source reduction programs in Orcutt. These measures in addition to the development standards described in Section 3.10.1 were to minimize impacts to public services.

SW-1: The County shall pursue a residential, commercial, and industrial recycling program throughout the OPA. All residential, commercial, and industrial development shall be required to participate, to the greatest extent feasible, in those efforts as determined by the County Department of Public Works.

SW-2: All existing and future residential developments in the urban area shall participate, to the greatest extent feasible, in yard waste collection programs as may be provided by the County of Santa Barbara. Such programs may include yard waste accumulation bins, curbside pickups and backyard composting. Accumulation bins would be provided by the County.

SW-3: Recycling bins shall be provided (by the applicant) at all construction sites. All recyclable materials currently being accepted at either the landfill and/or recyclable centers shall be recycled at construction sites.

SW-4: The County of Santa Barbara Public Works Department shall actively pursue discussions with responsible agencies (Santa Maria Public Works Dept., etc.) in finding a suitable location for siting a new landfill in northern Santa Barbara County to serve the area currently utilizing the Santa Maria landfill

SW-5: All new and existing development shall comply with the California Integrated Waste Management Act of 1989 (AB 939), which requires 25 percent diversion of all solid waste from landfills by 1995 and 50 percent by 2000.

Even with a 50 percent diversion rate for the OCP community as a whole, the impact on solid waste and landfill capacity would still be *significant and unavoidable* (Class I).

2018 Impact Analysis

Using the formula for single family residence solid waste generation provided in the Santa Barbara County Environmental Thresholds and Guidelines Manual, the proposed Specific Plan population increase of 470 residents would result in a solid waste demand of 417 tons/per year. This would exceed the County's 196 tons/year threshold by 221 tons.

The proposed Project would be subject to the County waste reduction and recycling requirements. County waste characterization studies estimate that implementation of a Source Reduction and Recycling Element (SRRE) program can attain up to 50 percent reduction in the solid waste stream. Though the requirements would reduce the demand by 50 percent to 208 tons/year, the threshold would still be exceeded. Impact to landfill capacity would be *significant and unavoidable* (Class I).

Construction activity would also generate extensive solid waste, particularly wood, metal and cardboard. According to County of Santa Barbara Thresholds and Guidelines Manual, construction of 47,000 square feet of new residential buildings would have a significant impact on public services. As each of the 146 single-family residences would be larger than 322 square feet, this threshold would be exceeded. Thus, the disposal of construction materials would have *significant and unavoidable* (Class I) impacts on public services.

Mitigation Measures and Residual Impact

PS-2.1: The developer shall develop and implement a Source Reduction and Solid Waste Management Plan (SRWMP) describing proposals to reduce the amount of waste generated during construction and throughout the life of the project and enumerating the estimated reduction in solid waste disposed at each phase of project development and operation. The plan shall include but not limited to:

1. Construction Source Reduction:
    a. A description of how fill will be used on the construction site, instead of landfilling.
    b. A program to purchase materials that have recycled content for project construction.
2. Construction Solid Waste Reduction:
    a. Recycling and composting programs including separating excess construction materials onsite for reuse/recycling or proper disposal (e.g., concrete, asphalt, wood, brush). Provide separate onsite bins as needed for recycling.
3. Operation Solid Waste Reduction:
    a. Ensure residential curbside recycling pick-up service is provided for Hidden Canyon and Willow Creek Neighborhoods.

b. Ensure residential curbside green waste pick-up service is provided for Hidden Canyon and Willow Creek Neighborhoods.

Even with implementation of 50 percent diversion rates, waste generated by the proposed project would still exceed the County's threshold of 196 tons/year. The project would also exceed the County's threshold for construction waste of 350 tons. These impacts on solid waste would *significant and unavoidable* (Class I). This impact would be similar to that identified in the OCP FEIR.

Impact PS-3: The proposed development would not substantially diminish the Laguna County Sanitation District's wastewater treatment capacity.

1997 Impact Analysis

The OCP FEIR identified that Plan buildout would substantially increase total dissolved solids (TDS) in the LCSD, and was projected to exceed the treatment capacity of the plant. This impact was determined *significant and unavoidable* (Class I). Additionally, the buildout would require additional trunk and feeder lines where they would not currently exist.

Mitigation Measures and Residual Impact

In addition to the development standards described in Section 3.10.1, the OCP identified measures that would minimize impacts to public services:

WW-1: All new development shall be required to use replacement canisters for water softening rather than home salt-based softening units, with such measures included in both proposed CC&Rs and as a condition of project approval; and LCSD shall actively pursue methods to improve influent flow entering the plant and to reduce the TDS levels in existing discharge.

WW-2: The LCSD shall identify, plan for and construct additional trunk and feeder lines to serve full buildout of the Community Plan (specifically Key Sites 12, 15, 22 and 33).

WW-3: The LCSD shall identify the cost of all new trunk and feeder lines necessary to serve full buildout of the Community Plan and shall revise their fee program to assess fees on each new residential unit and/or commercial development sufficient to fund the entire cost of the additional lines. This revised fee program shall be prepared upon adoption of the Plan.

WW-4: All new development shall pay the trunk and/or feeder line fees as appropriate for the project.

WW-5: Development approvals for projects requiring community sewer service shall be conditioned upon annexation to the Laguna County Sanitation District prior to recordation of the tract map or development permit.

WW-6: Santa Barbara County Planning & Development (P&D) shall coordinate with the Laguna County Sanitation District and the Regional Water Quality Control Board in

order to ensure that appropriate and timely planning for expansion of the LCSD's treatment and disposal capacity occurs to accommodate buildout under the Orcutt Community Plan. The LCSD and P&D shall commission and oversee a study to determine the range of options available for expansion of the District's capacity. Prior to Planning Commission hearings on the Orcutt Community Plan in November, 1995, the LCSD shall also revise the District's fee structure to ensure that funding will be available to build and maintain a new (or supplemental) plant. Preliminary estimates for such a plant are $20 million, and this would increase fees for new development to $1,554 per unit or 350 square feet of C/I development (assuming 6,300 new units and 2.3 million s.f. of C/I development).

WW-7: All new commercial and industrial development which will generate greases, oils and/or chemicals that will be added to the wastewater flows shall be fitted with on-site filtration consisting of charcoal filters or some other method per LCSD ordinance to reduce site-specific discharge of these substances.

With implementation of these mitigation measures, residual impacts related to TDS were considered *significant*, but feasibly mitigated (Class II). Despite implementation of feasible mitigation, impacts to plant capacity were considered *significant and unavoidable* (Class I).

2018 Impact Analysis

The LCSD establishes sewage generation rates based on development type and housing density. The generation rate is then multiplied by the development acreage to determine a total project wastewater treatment demand. Since the Neighborhoods Specific Plan contains a mix of development, different rates are applicable in different areas. This was compensated for by adjusting the acreages to more accurately reflect the actual housing density. The LCSD design guidelines do not account for a peaking factor in estimating the flow generations. This is a typical industry practice and was used in the design of the 24-inch main that the Specific Plan would connect to on Key Site 22. For consistency purposes, a peaking factor was used in the preliminary sizing of The Specific Plan sewer system. The generated wastewater flows are estimated in Table 3.10-1, Project Wastewater Flows.

Table 3.10-1: Specific Plan Wastewater Demand

Willow Creek Neighborhood					
	CFS/count	Q (avg) CFS		Q (peak) CFS	
90 units	0.00034/unit	0.030		0.074	
Hidden Canyon Neighborhood					
	CFS/Count	Q (avg) CFS		Q (peak) CFS	
56 units	0.000034 unit	0.019		0.046	
Project wastewater totals		Q (avg) cfs		Q (peak) cfs	
		CFS	MGD	CFS	MGD
		0.049	0.076	0.250	0.161

CFS – cubic feet per second; MGD – million gallons/day
Unit flows derived from LCSD Standard Specifications for the Construction of Sanitary Sewers, Sept. 16, 2014
Qpeak = Qavg x 2.4

As shown, Specific Plan buildout would generate an estimated 0.049 cubic feet of wastewater per second, or 31,694 gallons/day (0.031 mgd) of wastewater based on projected residential uses. This would increase the current LCSD capacity from 1.7 to 1.73 mgd, representing approximately 46.7 percent of the total plant design capacity. Since this additional wastewater would not cause the LCSD plant to exceed 75 percent of its existing design capacity, the potential Project impact on wastewater treatment would be *adverse, but less than significant* (Class III).

Although outside of the proposed project site, development under the Neighborhoods Specific Plan would require addition of trunk and feeder lines in Key Site 22 to the north of the project site resulting in *potentially significant* impacts to wastewater services.

The development of 146 new residences could increase the TDS levels through the addition of salt water softeners resulting in *potentially significant* impacts to wastewater services.

Mitigation and Residual Impacts

PS-3.1: The developer shall enter into an agreement with LCSD to convey trunk and feeder line fee payments.

PS-3.2: All new residences shall be required to use replacement canisters for water softening rather than home salt-based softening units.

With payment of trunk and feeder line fees and implementation of replacement canisters for water softening in residences, impacts to wastewater services would be *significant, but feasibly mitigated* (Class II). This impact would be less than that identified in the OCP FEIR.

Impact PS-4: ***The proposed development would substantially increase demand for schools.***

1997 Impact Analysis

OCP Buildout was expected to result in overcrowding of existing public school facilities, the need for additional facilities and school sites, and increased student-teacher ratios and operation costs. Impact assessment was based on student generation rates of 0.60 K-8 and 0.999 high school students per household (based on 2.87 person per household, and projected buildout of 6,200 new residential units). Full buildout would generate a projected 2,400 K-8 students, approximately 2,000 more than can be accommodated at full expanded capacity in the Orcutt Union School District. This would create impacts to elementary and junior high facilities by causing overcrowding and the need for new facilities. This impact was considered *significant and unavoidable* (Class I).

Full Buildout would also generate a project increase in enrollment of 624 new high school students to Ernest Righetti High School, causing it to further exceed its enrollment capacity. This was also a *significant and unavoidable* (Class I) impact. Additionally, the OCP EIR also identified lack of school sites to construct new schools to meet the buildout needs and lack of funding to do so.

Mitigation and Residual Impacts

The OCP identified the following existing mitigation measures to reduce impacts to public services:

The Orcutt Union School District existing fees are based on each new residential unit averaging 1,544 s.f. and would create an average school facilities cost of $1,992 per unit and $1.29 per sf.

The Santa Maria Joint Union High School District Developer Fee Justification Study (Burke Consulting, 04/94), stated that:

- SMJUHSD enrollment is expected to increase by 48% to 6,791 high school students by the 2003-2004 school year.

- Each new residential unit will generate 0.099 high school students for the SMJUHSD. Each new residential unit will average 1,165 s.f. and would create an average school facilities cost of $1,654 per unit and $1.42 per sf.

Santa Maria-Bonita School District. The joint SMBSD, SMJUHSD, OUSD School Facility Mitigation Report (03/31/92) stated that the total K-12 school mitigation fee amount was $8,992.00 in the SMBSD (the K-8 fee for SMBSD was $6,712); and each new residential unit would generate 0.60 K-8th grade students for the SMBSD. The School Facilities Study was not accepted by the Santa Maria City Council as a basis for increasing fees. The SMBSD and the City of Santa Maria agreed on a fee of $2.72 per square foot or residential development.

For all affected districts, the report states the cost of school construction was:
Elementary (K-6), $6.4 million per 720 students;
Junior High (7-8), $11.2 million per 1,000 students; and
High School (9-12), $32 million per 2,250 students.

The OCP identified the following new mitigation measures to reduce impacts to public services:

SCH-1: The County shall cooperate with the school districts to require the maximum allowable school facility fees allowable under State law on all new residential, commercial, and industrial projects within the OPA.

SCH-2: The County shall require the provision of three elementary school sites and one junior high school site as part of the approval of the Orcutt Community Plan. If densities are increased to three thousand units (high build alternative) on Site 22, the County shall also require the provision of a high school site.

SCH-3: The County shall work cooperatively with the school districts to facilitate the formation of a Mello-Roos District or other funding sources, upon the formal request from the district(s) to fund school services including new construction and operation, etc.

The OUSD estimates that residential, commercial, and industrial development would generate an estimated facilities cost of $2,396,717 by the 2003-2004 school year; estimated revenue would be $2,260,416. This amount did not account for new school construction or increased operational costs, but was for additional portable classrooms. The SMJUHSD estimated that residential, commercial, and industrial development would generate an estimated facilities cost of $14,883,312 (not including the land costs) by the 2003-2004 school year; estimated revenue would be $5,778,284. Because of the uncertainty of obtaining adequate levels of funding to support the provision of school services, impacts of both the 10-year and full buildout scenarios were considered *significant and unavoidable* (Class I).

2018 Impact Analysis

Table 3.10-2 summarizes the expected student generation from Specific Plan buildout. The generation rate is based on the OUSD Developer Fee Justification Study (1994).

Table 3.10-2 – Specific Plan Buildout Student Generation

Education level	Generation rate[1]	Split factor[2]	Total no. of students
Elementary	0.38 students/unit x 146 units = 55 students	0.75	41
Junior high	0.38 students/unit x 146 units = 55 students	0.25	14
High school	0.099 students/unit x 146 units = 14 students	N/A	14

1. Orcutt Union School District Developer Fee Justification Study, April 1994
2. Based upon current enrollment figures reflecting the elementary/junior high school split within the Orcutt Union School District

Table 3.10-3 – Post-Project Local School Student Enrollment

School	Operating capacity	Current student enrollment	Current % capacity utilization	Students generated from Project	Enrollment with project	Capacity with project
Pine Grove Elementary	621	529	85%	41	570	92%
Orcutt Junior High	553	570	103%	14	584	106%
Ernest Righetti High	2,517	2,175	86%	14	2,189	87%

The County has determined that a significant impact on schools would result in the need for an additional classroom, estimated to be 29 students for elementary/junior high students and 28 high school students. Though buildout under the Neighborhoods Specific Plan would result in an additional 41 elementary school students, Pine Grove Elementary currently has sufficient capacity to accommodate these students without needing an additional classroom. The additional 14 high school students could be accommodated at Ernest Righetti High. However, the addition of 14 junior high students to Orcutt Junior High would result in the need to create a new classroom. Thus, impacts to schools would be *potentially significant*.

Mitigation Measures and Residual Impacts

PS-4.1: The developer shall notify the OUSD and SMJUHSD of expected build out date of the project to allow Districts to plan in advance for new students.

PS-4.2: The developer shall enter into an agreement between OUSD and SMJUHSD to convey appropriate statutory fees and mitigation payments.

The implementation of mitigation measures ensuring payment of statutory fees would ensure that the residual Impact PS-4 would be *significant, but feasibly mitigated* (Class II). This impact would be less than that identified in the OCP FEIR.

Impact PS-5: *Development of the proposed project would substantially increase the demand on existing library facilities.*

<u>1997 Impact Analysis</u>

Based on a 0.5-square feet per person figure, OCP Buildout would result in a need for a 27,000 square foot library. OCP Buildout would generate an increase in library usage by approximately 50 percent thus creating a further impact on existing library services. Moreover, the lack of funding made it unlikely to purchase land and build new facilities. This impact was considered *significant and unavoidable* (Class I).

Mitigation and Residual Impacts

LIB-1: The County shall establish a Community Service Area (CSA) to fund the cost of acquisition, construction, and furnishing of a new library facility (20,000 square foot minimum) in a central Orcutt location such as Old Town.

LIB-2: The County shall increase revenues for funding library services to the State recommended minimum level of $12.00 per person annually. This may be accomplished by the formation of an assessment district, service district, use tax, parcel tax, etc.

Due to the inadequacy of existing service levels, both in terms of size of facilities and availability of sufficient funding, and the uncertainty of obtaining new facilities and/or adequate funding, impacts to Library Services were considered *significant and unavoidable (*Class I).

2018 Impact Analysis

Proposed Specific Plan buildout would exacerbate the existing deficit of library services within Orcutt in terms of library space and per capita operating budget. Assuming 3.22 residents per unit, the buildout would introduce 470 new residents, resulting in a demand of an additional 235 square feet of library facilities. Additionally, population growth under the Neighborhoods Specific Plan would further reduce the per capita library operating budget. Thus, impacts on library services would be *potentially significant*.

Mitigation Measures and Residual Impacts

The following measure would minimize potential impacts on regional library services:

PS-5.1: A development fee, subject to change based on Public Infrastructure Financing Program for the Orcutt Community Plan, shall be paid to the County of Santa Barbara to offset costs of providing library services to the project site. Payment of a development fee shall be necessary to receive project approval.

Despite payment of library fees, impacts to library services would be *significant and unavoidable* (Class I) due to the existing inadequacy of existing service levels, both in terms of size of facilities and funding per capita. This impact would be similar to that identified in the OCP FEIR.

3.10.3 Cumulative Impacts

1997 Impact Analysis

Police Protection

Population growth associated with buildout under the Orcutt Community Plan would result in *potentially significant* cumulative impacts to public health and safety due to an increased demand for police protection services in the region. As described in Section 3.6.3 for Impact PS-1, impacts would be *significant and unavoidable* (Class I), because of the existing shortage of patrol officers in the

region and lack of available funding.

Solid Waste

The OCP EIR identified *significant and unavoidable* (Class I) cumulative impacts associated with solid waste. Over the subsequent 15 to 20 years after 1997, increased urbanization in the region is expected to lead to the development of approximately 20,000 new homes and a projected 5,000,000 to 10,000,000 square feet of commercial space. This growth, including the proposed project, would create a significant increase in the waste stream, leading to the existing landfill's permitted capacity potentially being exceeded within the next ten years, and creating the need for relatively rapid location and opening of a new landfill. Given the complexity of landfill siting, cumulative impacts were considered to be *significant and unavoidable* (Class I).

Wastewater

As described in Section 3.10.2 "Regulatory Setting Changes," wastewater impacts are determined on a cumulative basis for overall facilities capacity. The OCP EIR identified *potentially significant* cumulative impacts associated with wastewater. Estimated wastewater demand at full buildout could exceed the treatment capacity of the current plant, creating potentially significant impacts to provision of adequate public services due to potential delays in construction of new development until a new treatment plant is constructed or the current plant expanded. As described in Section 3.10.3 for Impact PS-3, impacts to plant capacity were considered *significant and unavoidable* (Class I) due to inadequate funding.

Schools

The OCP EIR identified *significant and unavoidable* (Class I) cumulative impacts to school services. Full buildout of the Orcutt Community Plan would generate a projected increase in enrollment of 624 new high school students to Righetti High causing that school to further exceed its enrollment capacity and contributing substantially to significant and unavoidable cumulative impacts within the SMJUHSD district through overcrowding, increased student-teacher ratio, and potential decreases in the quality of education. As described in Section 3.10.3 for Impact PS-4, impacts would be *significant and avoidable* (Class I) due to inadequate levels of funding to support the provision of school services.

Library Services

As described in Section 3.10.3 for Impact PS-5, full buildout of the Orcutt Community Plan would generate an increase in population which, in combination with inadequate funding, would have a *significant and unavoidable* (Class I) impacts on existing inadequate library services in the region.

2018 Impact Analysis

Police Protection

Proposed Specific Plan buildout would generate approximately 470 new residents in the area, which would increase demand on police protection services. As discussed in Section 3.10.3 for Impact PS-1, the Neighborhood's Specific Plan's contribution to the overall cumulative impact would be *significant and unavoidable* (Class I) due the preexisting deficit in police protection services. This impact would be similar to that identified in the OCP FEIR.

Solid Waste

The proposed project, in combination with other planned and pending development in the Santa Maria/Orcutt area, would increase solid waste generation thereby reducing the lifespan of solid waste landfills serving the area. The Neighborhoods Specific Plan would contribute incrementally to the cumulative impact to landfill capacity. As described in Section 3.10.3 for Impact PS-2, the Neighborhoods Specific Plan would generate 221 tons of additional waste a year after 50 percent waste reduction. This amount would exceeds the 196 tons per year threshold. Therefore, the Project would result in a *significant and unavoidable* (Class I) impact to cumulative solid waste generation. This impact would be similar to that identified in the OCP FEIR.

Wastewater

As described in Section 3.10.2 "Regulatory Setting Changes," wastewater impacts are determined on a cumulative basis for overall facilities capacity. As described in Section 3.10.3 for Impact PS-3, the additional 0.031 mgd Project wastewater demand would not cause the LCSD to exceed 75 percent of its design capacity. Therefore, cumulative impacts under the Neighborhoods Specific Plan would be *adverse, but less than significant* (Class III). This impact would be less than identified in the OCP FEIR.

Schools

The Neighborhoods Specific Plan would place additional demand on school services in the area. As discussed in Section 3.10.3 for Impact PS-4, the additional demand resulting from the project would result in the need for an additional classroom at Orcutt Junior High School and Ernest Righetti High School due to current overcapacity. However, implementation of PS-4.1 and PS-4.2 would reduce cumulative impacts to school services in the region to *significant but feasibly mitigated* (Class II). This impact would be less than that identified in the OCP FEIR.

Library Services

Proposed development would result in 146 residential dwelling units and a corresponding increase of 470 residents to the Orcutt community. As described in Section 3.10.3 for Impact PS-5, buildout of the Neighborhoods Specific Plan area would result in of an additional 235 square feet of library facilities and would reduce the per capita library operating budget. Due to existing funding deficits and inadequate space, demand under the Neighborhoods Specific Plan project would result in *significant and unavoidable* (Class I) cumulative impacts on library services in the area. This impact would be similar to that identified in the OCP FEIR.

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3.11 RECREATION

This section evaluates potential impacts to recreation that could be caused by the proposed development.

3.11.1 Previous CEQA Review

Orcutt Community Plan

The Orcutt Community Plan (OCP) EIR identified *significant and unavoidable* (Class I) recreation impacts related to increased demand for and use of parks and recreational facilities, inadequate funding for construction and maintenance of parks and recreational facilities, and loss of open space and established public use of trails. Site specific analysis was not performed for recreation at Key Site 21.

Orcutt Community Plan Development Standards for parks, recreation, and trails applicable to Key Site 21 include DevStd PRT-O-4.1 and DevStd PRT-O-4.3, which require development on sites with identified trail corridors to construct and maintain for two years designated trails indicated in the Orcutt Multiple Use Trails Plan. According to DevStd PRT-O-4.2, these trails must comply with the Trail Siting Guidelines of the Orcutt Multiple Use Trails Plan. The OCP Parks, Recreation, and Trail Map indicated a designated trail, RM-1, extending along the eastern property boundary of the Hidden Canyon Neighborhood that would allow a continuation southward of approximately 4,800 feet to the OCP Planning Area boundary, at an elevation of 985 above sea level. OCP Key Site 21 Design Standard KS 21-5 required that the onsite trail provide a continuous connection to the southeastern property boundary where future dedications would be required to achieve completion of the RM-1 trail.

DevStd PRT-O4.2 states that trails should cross primary, and where appropriate secondary, roadways at controlled intersections and be limited to 6 feet in width in natural undeveloped open space areas except along Class I bikeways and emergency access routes. Site specific development standards include DevStd KS21-5, which requires the developer to dedicate an easement for and construct a public staging area and hiking trail along the east side of the site boundary and DevStd KS21-7, which requires development to be designed to facilitate pedestrian access to the golf course and accommodate continued use of the public golf course.

The following potentially *significant but avoidable* (Class I) impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact REC-1: ***Intensification of use in existing recreational facilities***. Increased population associated with buildout of the community plan could result in *significant* recreational impacts to the existing recreational facilities in the community through overuse and increased overcrowding, leading to unavailability of facilities to existing and future residents.

Impact REC-2*: Increased Demand for recreational facilities*. The increased population associated with buildout of the community plan would worsen the existing recreational facility deficit

in the community and cause a substantial increase in demand for parks, hiking trails, bike paths and active recreational facilities of all types resulting in *potentially significant* impacts to the public welfare and a lack of recreational opportunities for youth.

Impact REC-3: ***Loss of open space/established public use of trails***. Buildout of the community plan would substantially reduce the amount of undeveloped open space and the existing extensive trail network in the community, resulting in *potentially significant* impacts to the community through the loss of established hiking, biking trails and passive recreational areas.

Impact REC-4: ***Increased demand for neighborhood parks***. Buildout of the community plan would reduce the amount of undeveloped open space in the urban area while substantially increasing the population in neighborhoods with no established or proposed neighborhood parks, resulting in *potentially significant* recreational impacts to the community.

Impact REC-5: ***Inadequate funding for park construction/maintenance***. Existing fees and levels of funding for maintenance are inadequate for the Parks Department to provide additional parks or maintain existing and/or new facilities, creating *potentially significant* impacts to existing and future residents due to inadequate recreational opportunities.

3.11.2 Relevant Changes

Project Description Changes

The location of the neighborhood Neighborhoods Specific Plan lots for are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed small changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- The proposed 97 acres of undisturbed open space are three times greater than conceptually protected in the 25-acre Key Site 21 Open Space Overlay.
- The Neighborhoods Specific Plan includes a public trail that would provide access from the Hidden Canyon Neighborhood extending to the terminus of the Hidden Creek Neighborhood internal access road, north of the proposed subterranean water tank (see Specific Plan Pedestrian Circulation Plan, Figure 6-2). The trail would end approximately 400 feet north of the southeastern Specific Plan boundary, as opposed to the Key Site 21 PRT trail RM-1 segment that “continue(d) into the hills south of the site.”
- Six parking spaces would be provided at the trail head adjacent to the most westerly entrance to the Hidden Creek Neighborhood, slightly north of the trail staging area identified in the OCP FEIR Key Site 21, Figure KS21-1 (a General Plan Amendment is requested to relocate the proposed trail staging area from the location shown in Orcutt Community Plan Figure KS 21-1 adjacent to Highway 1) to within the Hidden Creek Neighborhood as indicated).

Regulatory Setting Changes

No change to the County of Santa Barbara Thresholds of Significance has occurred since 1997 that affect the analysis of recreation. CEQA Guidelines Appendix G, Environmental Checklist, provide the general standards that are used to address potential impacts on recreation. Impacts would be considered significant if project would:

No change to the County of Santa Barbara Recreation Guidelines, including thresholds of significance, has occurred since 2003 that affect the analysis of recreation. A significant impact on recreation would occur if a project would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; and/or

- include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Existing Setting

The existing recreational setting of The Neighborhoods Specific Plan has not changed since 1997. Both Willow Creek and Hidden Canyon Neighborhoods are adjacent to the Rancho Maria Golf Course (RMGC), a public facility that is open year-round, from dawn to dusk.

3.11.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact REC-1.1: *Specific Plan Buildout would result in an Intensification of use of existing recreational facilities.*

<u>1997 Impact Analysis</u>

The OCP EIR identified *significant and unavoidable* (Class I) impacts associated with increased population under buildout of the OCP, resulting in overuse and increased overcrowding of existing recreational facilities and unavailability of facilities to existing and future residents.

Mitigation and Residual Impact

The following measures were identified in the OCP to address potentially significant impacts associated with intensification of use in existing recreational facilities:

REC-1a: *Unified Open Space Overlay*. Concurrently with the adoption of the Orcutt Community Plan, the County shall adopt an Open Space Overlay (Figure 2-14) for the community of Orcutt to provide for the protection of contiguous bands of open

space within the northern Orcutt, Orcutt Creek, Solomon Hills and West Orcutt open space corridors. The purpose and intent of this overlay shall be to provide for long term protection of contiguous bands of public and private open space. This overlay system shall be designed to protect and augment both active and passive recreational opportunities throughout the community.

REC-1b: *Unified Open Space Plan*. As part of adoption of the Open Space Overlay, the County shall adopt a unified open space plan for the general location and intensity of allowable uses within the open space overlay. The open space plan shall set standards for protection of existing significant trails, for provision of active and passive recreation and for the integration of expanded recreational opportunities into new and existing neighborhoods.

REC-1c: *Landscape-Open Space Maintenance District*. The County shall form a Landscape and Open Space District to provide long term management of public open space areas, protection of natural resources, installation and maintenance of both passive and active public recreation, maintenance of landscape planter strips and medians along major travel corridors, and landscape maintenance of regional retention basins. All new development shall provide a per-unit fee that will partially fund the Orcutt Community Landscape and Open Space District. Said fee shall be used for capital improvements to enhance, acquire, and preserve public landscape and open space areas. The amount of this one-time fee will be decided by the Board of Supervisors and is estimated to be between $100 and $500 per unit. Examples of how funds can be used include, but are not limited to: purchase of property and conservation easements, installation of park benches, trail maps and signs, habitat restoration, fencing, fire protection, etc. Maintenance would be separately funded by a voter-approved special assessment

REC-2: The County shall pursue the acquisition of areas identified as public parks on the proposed PRT map. Specific parcels for each proposed public park site are listed in Tables 5.16-3 and 5.16-4 of the OCP.

Though the above mitigations would substantially reduce impacts to parks and recreation, impacts would be *significant and unavoidable* (Class I) due to funding shortfalls and competition between various programs and mitigations for funding.

2018 Impact Analysis

The proposed Specific Plan respects the Open Space overlay that was identified for Key Site 21 in the OCP and provides an additional 72 acres than conceptually approved in the OCP. The substantial additional open space maximizes the buffer between the proposed residential land uses and the existing RMGC recreational activities. This would represent an improvement relative to the approved conceptual Key Site 21 buildout. Impacts on RMGC existing recreational use would be *adverse, but less than significant.*

It is reasonable to assume that a number of potential residents purchasing Specific Plan Neighborhood homes would be attracted to the opportunity to play and potentially be a member at

the RMGC. Nationwide, 6.5 percent of all golf courses have closed since 2005 with an average decline of 0.6% per year (Larry Hirsh, 2017). It is reasonable to expect that RMGC would benefit from the added revenue and membership that Specific Plan buildout would provide. This would be a beneficial financial impact on recreational facilities.

Proposed grading of Willow Creek and Hidden Canyon residences would occur over a 7-month period, during which cut and fill from each neighborhood would be balanced onsite (see Project Description Grading). Given the net fill of 27,031 cubic yards (c.y.) within Willow Creek and net cut of 84,367 c.y. within Hidden Valley, it is reasonable to assume that haul trucks would need to transfer soils along proposed internal roads to avoid encroachment into proposed open space areas. The intensity of this short-term construction, including noise and truck movements, would result in a *significant impact* on existing RMGC recreational activity during this 7-month period. Measures NOI-4.1 and -4.2 (see Section 3.9) would ensure that the scheduling of these trips, as well as all other construction, would occur during between 8:00 a.m. and 5:00 p.m. weekdays only.

Mitigation Measures and Residual Impact

The following measure would reduce the impact on RMGC activities during Specific Plan grading activities.

REC-1 A Construction Grading Plan shall be prepared that would be implemented during the estimated 7-month period of balancing cut and fill between the Willow Creek and Hidden Valley Neighborhoods in order to minimize disturbance to RMGC recreational activities. The plan shall include:

a. All haul trucks transporting soils between neighborhoods shall use designated access routes that remain outside of proposed open space areas.
b. Designated haul routes be identified to maximize their distance from RMGC tee boxes and greens.

Implementation of this measure, along with NOI-4.1 and -4.2, would feasibly minimize the short-term disturbance to RMGC recreational activities during grading and balancing of soils between neighborhoods. The residual short-term impact, however, would be *significant and unavoidable* (Class I). This residual impact would be similar to that identified in the OCP FEIR.

Impact REC-2*: The Specific Plan would result in an increased demand for recreational facilities.*

<u>1997 Impact Analysis</u>

The OCP EIR identified *potentially significant* impacts to public welfare and a lack of recreational opportunities associated with increased population under buildout of the OCP. The increase in population would result in a substantial increase in demand for parks, hiking trails, bike paths, and active recreational facilities of all types and worsen of the existing recreational facility deficit in the community.

Mitigation Measures and Residual Impact

Mitigation Measures REC-1a, REC-1b, REC-1c and the following measures were identified in the OCP to address potentially significant impacts associated with increased demand for recreational facilities:

REC-3: The County shall coordinate with the City of Santa Maria and Santa Maria Public Airport District on integrated planning for provision of a passive recreational open space area between Orcutt and the southern airport property and the northern areas of Site 22 and Site 23. This area should incorporate the Union Valley Parkway trail corridor, as well as the existing trails within the eucalyptus and oak woodlands and the sand dune/vernal pool complexes.

REC-8: The County shall adopt and implement the Bikeways Plan (Figure 5.9-5 of OCP) as a means of offsetting the increased demand for recreational opportunities associated with buildout of the OCP.

REC-9: The County shall adopt and implement the Multiple Use Trails Plan (Figure 2-8 of OCP).

REC-10: Where feasible and appropriate given existing constraints and neighborhood demands, regional retention basins should serve a dual flood control/recreational use. Recreational areas must have side slopes no steeper than 6:1 along access frontage side (one side only) and 5:1 on all others. 5.16 Parks and Recreation / Trails 5.16-17 Basins totaling 10-15 acres may be no more than 15' deep. Minimum slope of the recreation area is 0.5%.

REC-11: The County Parks Department shall be responsible for reviewing trail easement requirements, location, and design on a case-by-case basis and for obtaining appropriate permits and environmental review prior to trail construction. Trails shall be sited and designed to avoid significant environmental constraints and to minimize user conflicts and conflicts with surrounding land uses, to the maximum extent feasible.

Similar to Impact REC-1, impacts would be *significant and unavoidable* (Class I) due to funding shortfalls and competition between various programs and mitigations for funding.

<u>2018 Impact Analysis</u>

The proposed trail staging area and recreational trail extending alongside the eastern project boundary would feasibly provide additional recreational opportunities and public views of the Cabrillo Highway (SR 1) corridor from an elevated perspective of 400 feet above sea level, a gain of approximately 190 feet. The trail would be maintained by the Homeowners Association and would provide for unprecedented access to this scenic view northward to the Santa Lucia Mountains. According to the Specific Plan Pedestrian Circulation Plan, Figure 6-2, the terminus of the proposed trail is at the access road for the Hidden Canyon Neighborhood subterranean water tank, approximately 750 feet north of the Specific Plan southern boundary. An offer to dedicate an

easement to the remaining 750 feet of trail corridor extending to the southeast corner of the Specific Plan boundary is delineated on the Hidden Canyon tentative tract map. Signage would be placed at the end of the trail stating that the trail ends and that trespass farther south is prohibited. The Santa Barbara County Community Services Department, Parks Division would be responsible for installing the balance of the trail within the Specific Plan site in the future as a part of an overall project to extend the trail on the adjacent parcel to the south (Claude Garciacelay, personal communication 2018). The proposed staging area and trail would ensure consistency with the designated trail RM-1 within the Specific Plan as identified in the OCP Area Parks, Recreation, and Trails Map, and consistency with OCP Key Site 21 Design Standard KS 21-5 (Claude Garciacelay, personal communication 2018).

Retention basins would not be feasibly used as dual-purpose recreational areas given their depth that would be required to minimize their area extent.

Mitigation and Residual Impact

The following measure would be required to avoid significant impacts on recreation.

REC-2. The applicant shall provide a bond or other acceptable means to be held by the County of Santa Barbara for completion of the additional 750 length of trail along the southeastern Specific Plan boundary.

Implementation of REC-2 would ensure that the public trail and connection to the future RM-1 as defined on the OCP Area Parks, Recreation, and Trails Map is achieved. This would also ensure consistency with OCP Key Site 21 Design Standard KS 21-5. Residual impacts on recreation would be reduced to *significant but feasibly mitigated* (Class II), and would be similar to the OCP FEIR.

Impact REC-3: The Specific Plan would not result in a loss of open space/established public use of trails or other established recreational uses.

<u>1997 Impact Analysis</u>

The OCP EIR identified *potentially significant* impacts to the community through the loss of established hiking, biking trails, and passive recreational areas associated with buildout of the OCP. Buildout would substantially reduce the amount of undeveloped open space and the existing extensive trail network in the community.

Mitigation and Residual Impact

Mitigation measures REC-1a, REC-1b, REC-1c, REC-8, REC-9, REC-11, and the following measures were identified in the OCP to address potentially significant impacts associated with loss of open space/establish public use of trails:

REC-6: All new development adjacent to open space overlay areas and/or zoned PRD shall be required to dedicate appropriate areas in fee simple or as easements for public open space, and to dedicate trail easements for proposed trails (Figure 2-8 of OCP).

As for Impact REC-1, impacts would be *significant and unavoidable* (Class I) due to funding shortfalls and competition between various programs and mitigations for funding.

2018 Impact Analysis

No existing trails would be removed as a result of Specific Plan Buildout. Dedication of the 2,800-foot long public trail and a six-space trailhead parking area in the Hidden Creek Neighborhood would offset the proposed Specific Plan residential population demand on trails, as refined by implementation of Measure REC-2. Impacts would be *adverse, but less than significant* (Class III).

Residential buildout would occur adjacent to RMGC recreational activity. A common potential conflict between golf and adjacent residential uses is the potential for errant golf shots, particularly those the longest occurring from tee boxes, to damage adjacent residential properties and even harm residents. The project applicant retained an internationally renowned golf course designer, Damian Pascuzzo, Pascuzzo/Pate Golf Design, who has over 35 years' experience including throughout the central Coast, to evaluate the potential pattern of RMGC golf shots relative to proposed residential lot design. The following summarizes his analysis (Pascuzzo 2017).

The relationship between homes and golf is always an important consideration for golf course designers. No professional national standards exist that dictate a minimum distance between golf course fairways and playing areas and adjacent residential development. Historically, golf course architects considered that an adequate playing area or "golf envelope" for most golfers' tee shots (those that are hit the farthest and have the greatest potential for misdirection) was 150 feet on each side of the fairway centerline, or providing a 300-foot wide distance between residential property lines. Designing fairways relative to adjacent residential development was considered to provide an adequate playing area that reasonably avoided conflicts from errant golf shots. As golf club and ball technology dramatically improved and provided greater distances in the 1980's, golf course architects revised the course design necessary to provide for landing areas that would continue to provide sufficient distance from residential land uses.

The contemporary standard to determine reasonable residential lot line offsets from golf course fairways takes into account that the vast majority of tee shots will fall within an angle measuring 15 degrees on each side of the centerline. In terms of distance from centerline to lot line, an offset of 180 feet or more to the right of centerline (assuming most golfers are right-handed and make most errant shots, or slices, to the right) is provided in a zone measured 220-250 yards from the back tee (golf course holes have at least three tees on each hole; the back tee is for the advanced golfer, the middle tee is for average golfers, and the advanced tee is called the women's' tee). Additional factors such as adjacent topography, bunkers (sandy obstacle areas), lakes, and screening vegetation are also design elements that can affect the way in which golfers conservatively approach hitting their tee shots, resulting in a reduction of overall distance and possible errant shot length.

RMGC ownership indicated in discussions with the Project applicant that preliminary Specific Plan residential lot design and orientation adjacent to Hole 13, 14, and 15 had the potential to introduce substantial conflicts with existing golf course recreational activity resulting from errant golf shots impacting adjacent residential back yard areas. In response to these concerns, Willow Creek Neighborhood lots adjacent to Holes 13 and 14 were redesigned with the assistance of Mr. Pascuzzo, and safety netting was established along the Hole 15 fairway to screen errant shots from

vehicular traffic on the Willow Creek Neighborhood driveway.

An analysis of the distances from the RMGC 13 and 14 Hole fairway centerlines in the zone between 200 and 250 yards measured from the back tees relative to the redesigned, currently proposed Willow Creek Neighborhood lots was determined using current aerial photography (see Potential Tee Shot Landing Areas, Rancho Maria Golf Course). This analysis demonstrates that all proposed residential lots are located outside of the reasonable expected fairway landing area, measured 180 feet from the fairway centerline and 200-250 yards from the back tee on both of these holes. In addition, an extensive screening landscape plan is proposed between the existing RMGC Hole 13 and 14 and Willow Creek residential lots, including rows of evergreen screen trees reaching heights of 30 feet and lower shrubbery. The vegetation would be aligned in a repeating chevron pattern radiating diagonally along the fairways that would allow view corridors experienced from the proposed backyards to the fairways, while effectively providing additional obstruction of errant shots that could land outside of the reasonably expected landing areas.

Two proposed residential lots encroach slightly within the expected landing zone adjacent to Hole 18 (see Potential Tee Shot Landing Areas, Rancho Maria Golf Course). Importantly however, the Willow Creek Lots 3 and 4 finished floor elevations would be elevated 7 feet above existing grade of the adjacent RMGC Hole 18 fairway, and proposed landscaping along the Hole 18 fairway would include a row of evergreen trees that would achieve heights of 30 feet (see Computer Simulations Figure 8, Willow Creek: Hole 18 Tee Box Looking South). The difference in height between the lots and the Hole 18 fairway and intervening screening vegetation would reasonably reduce conflicts from potential errant golf course shots from the 18th Tee Box. Based on this analysis, the potential for errant golf ball flight from the Hole 13, 14 and 18 Tee Boxes would be reasonably minimized due proposed residential lot line setbacks from landing areas.

In order to provide greater context for the ability of proposed Willow Creek Neighborhood design to reasonably minimize conflicts with existing RMGC golf course activity, an evaluation of six additional public golf courses with adjacent residential single-family homes was undertaken. The courses included:

- Black Lake Golf Course, Nipomo
- Cypress Ridge Golf Course, Avila Beach
- Monarch Dunes Golf Club, Nipomo
- Paso Robles Golf Course, Paso Robles
- Sterling Hills Golf Course, Camarillo
- River Ridge Golf Course, Camarillo

The number of residential lots and roadways encroaching within the reasonably anticipated landing zones measured from the fairway centerlines was determined. Each of the courses is graphically depicted in the attached figures. The results are presented in Table 3.11-1:

Table 3.11-1 Potential Tee Shot Landing Area Impacts

Golf Course	Lots Within Fairway Landing Areas	Roadways within Fairway Landing Area
Black Lake	22	2
Cypress Ridge	36	1
Monarch Dunes	17	0
Paso Robles	42	0
Sterling Hills	22	2
River Ridge	26	0

As noted above, contemporary considerations of appropriate landing area design have evolved since the 1980s with advanced technology allowing for longer golf shots. Several of the six courses analyzed above were constructed before this time. However, it is important to acknowledge that all of these public golf courses have successfully accommodated adjacent residential uses. The potential conflicts on those RMGC holes that are of greatest concern have substantially less potential for errant golf shot flight into residential back yards than those analyzed in Table 3.11-1, and this potential adjacent to the RMGC holes would be substantially lessened by differences in topography and screening vegetation. Potential impacts on existing RMGC recreational activity and adjacent residential buildout would be *adverse, but less than significant* (Class III).

The proposed golf netting plan has been designed consistent with professional designs to provide for protection of errant shots heading left from the Hole 15 Tee box. Standard black golf netting would extend for 550 feet from the tee box (at a height of 8 feet) along the length of the fairway and reaching a height of 60 feet at the green (see Proposed Landscape Design, Hole 15 Golf Course Netting). This standard protective measure is commonly used to eliminate adjacent land use conflicts with fairway shots, such as the netting adjacent to Santa Barbara Municipal Golf Club Hole 12, along State Route 225 (Las Positas Road), in Santa Barbara, California. The netting would effectively eliminate potential conflicts between existing RMGC golf activity and the Willow Creek vehicular activity along the internal access road. Potential impacts on existing RMGC recreational activity and adjacent Willow Creek Neighborhood residential buildout would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts on recreation would be less than significant, no additional mitigation is required. Though impacts would not require mitigation, the Project applicant has proposed the following refinement to the Project description to further reduce potential future conflicts between existing RMGC recreational activity and adjacent residential uses.

REC-3 Future Willow Creek and Hidden Valley homeowners shall sign waivers to waive golfers of responsibility for potential property and personal damage resulting from errant golf ball shots entering private backyard areas.

The residual impact on recreation would be *adverse, but less than significant* (Class III), and less than the OCP FEIR.

Impact REC-4: ***The Specific Plan would result in an increased demand for neighborhood parks.***

1997 Impact Analysis

The OCP EIR identified *potentially significant* recreational impacts to the community associated with buildout of the OCP, which would reduce the amount of undeveloped open space in the urban area while substantially increase the population in neighborhoods with no established or proposed neighborhood parks.

Mitigation and Residual Impact

Mitigation Measures REC-1a, REC-1b, REC-1c, REC-2, REC-3, REC-10 and the following measures were identified in the OCP to address potentially significant impacts associated with increased demand for neighborhood parks:

REC-4: The County shall continue to coordinate with the school districts to include joint-use facilities adjacent to public schools.

As for Impact REC-1, impacts would be *significant and unavoidable* (Class I) due to funding shortfalls and competition between various programs and mitigations for funding.

2018 Impact Analysis

Dedication of the 2,800-foot long public trail and a six-space trailhead parking area and dedication for potential 750-foot buildout to the Specific Plan southerly property line in the Hidden Creek Neighborhood would offset the proposed Specific Plan residential population demand on regional recreational facilities. Project-specific impacts would be reduced to *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts would be less than significant, no additional mitigation is required. The residual impact would be *adverse, but less than significant* (Class III), and less than the OCP FEIR.

Impact REC-5: ***Specific Plan buildout would address the project's contribution to funding for park construction/maintenance.***

1997 Impact Analysis

The OCP EIR identified *potentially significant impacts* associated with inadequate Parks Department funding for maintenance of existing and/or new parks and recreational facilities, which would result in inadequate recreational opportunities for existing and future residents.

Mitigation Measures and Residual Impact

Mitigation REC-1c and the following measures were identified in the OCP to address potentially significant impacts associated with inadequate funding:

REC-5: The County shall increase the rate of Quimby fees to fully offset the cost of developing and maintaining parks and open space areas to meet demands associated with new development.

REC-7: The County Parks Department shall continue pursue grants available for the provision of park facilities**.**

As for Impact REC-1, impacts would be *significant and unavoidable* (Class I) due to funding shortfalls and competition between various programs and mitigations for funding.

2018 Impact Analysis

Each proposed residence would be required to contribute standard Quimby fees to the County Parks Department that would be used to maintain and improve regional recreational opportunities. Project-specific impacts would be reduced to *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts would be less than significant, no additional mitigation is required. The residual impact would be *adverse, but less than significant* (Class III), and less than the OCP FEIR.

3.11.4 Cumulative Impacts

1997 Impact Analysis

Potentially significant cumulative impacts were identified in association with buildout of the Orcutt Community Plan. Increased population under buildout would lead to a substantial increase demand for recreational facilities in the region, which could not be provided by existing recreational facilities. Impacts would be *significant and unavoidable* (Class I) due to funding shortfalls.

2018 Impact Analysis

Though OCP Buildout has not occurred (for example, Key Site 22 to the north), the cumulative projected buildout impact on regional recreational facilities would be projected to remain *significant and unavoidable* (Class I) due to funding shortfalls, similar to the OCP FEIR.

References

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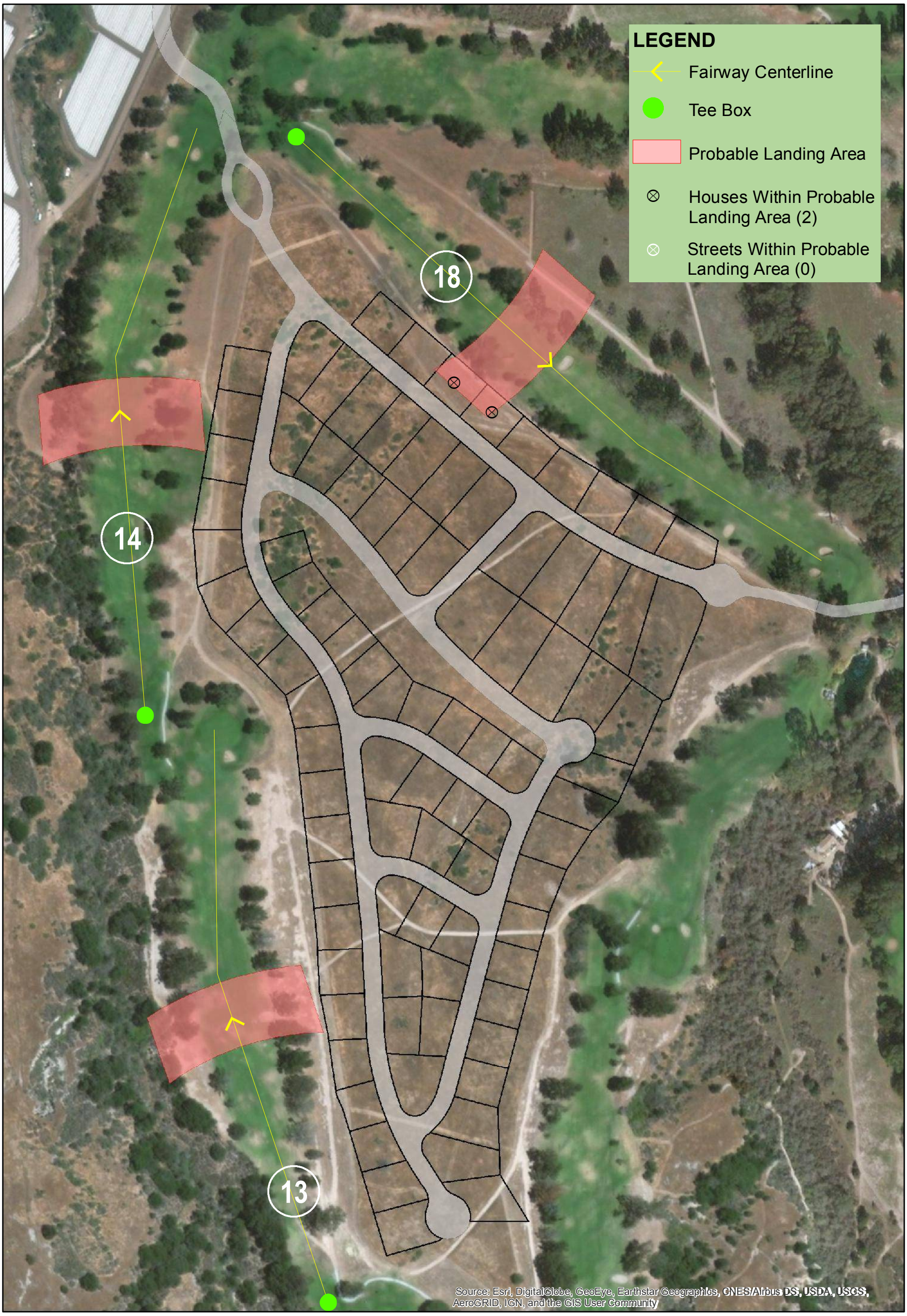
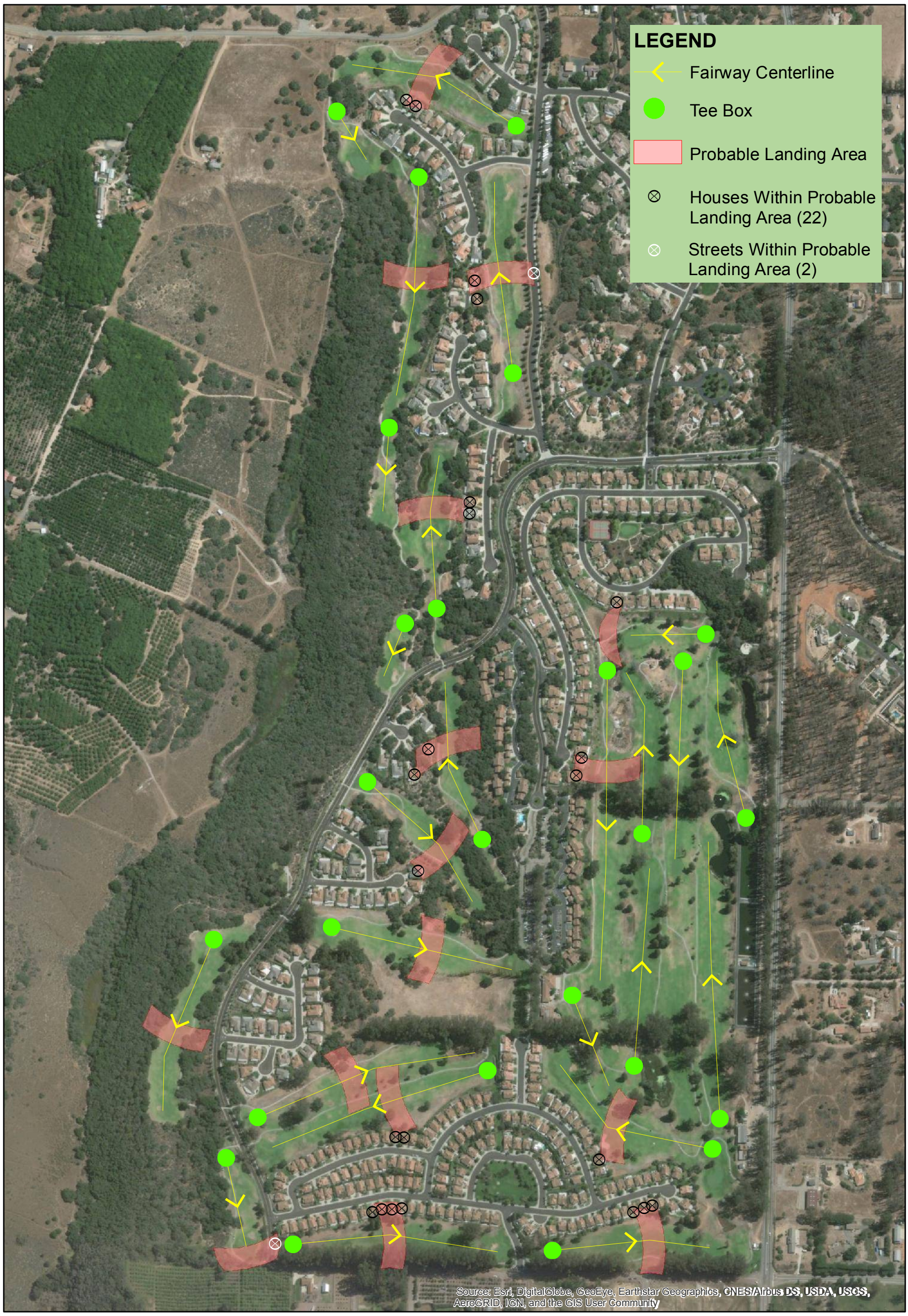
Pascuzzo, Damian. 2017. *Golf Course Setbacks*. Letter to Anthony Wells and Frances Romero. September 20. Pazcuzzo/Pate Golf Design.



Potential Tee Shot Landing Impact Areas
Rancho Maria Golf Course, Orcutt

N

0 100 200 400 Feet



Potential Tee Shot Landing Impact Areas
Blacklake Golf, Nipomo

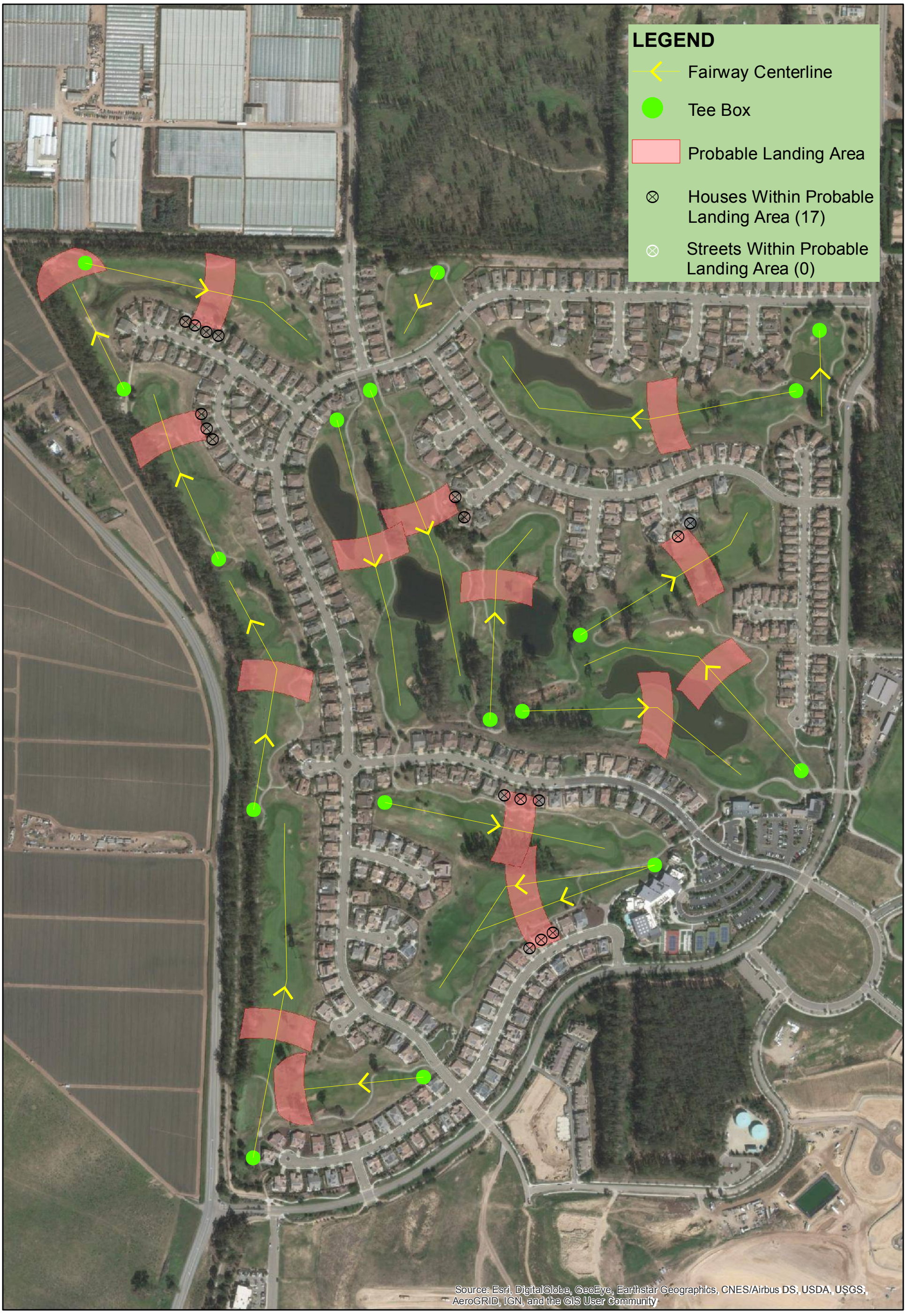
N

0 250 500 1,000 Feet

Potential Tee Shot Landing Impact Areas
Cypress Ridge Golf Course, Arroyo Grande

N

0 225 450 900 Feet



Potential Tee Shot Landing Impact Areas
Monarch Dunes, Nipomo

N

0 225 450 900 Feet

Potential Tee Shot Landing Impact Areas
Paso Robles Golf Club, Paso Robles

N

0 175 350 700 Feet

Potential Tee Shot Landing Impact Areas
Sterling Hills Golf Club, Camarillo

N

0 175 350 700
Feet

Potential Tee Shot Landing Impact Areas
River Ridge Golf Club, Oxnard

N

0 250 500 1,000 Feet

3.12 TRANSPORTATION

This section describes the potential traffic impacts that could result from buildout of the Neighborhoods Specific Plan. The traffic and circulation studies prepared by Stantec Inc. (2016) are included in Appendix D.

3.12.1 Previous CEQA Review

Orcutt Community Plan EIR

The Neighborhoods Specific Plan area was analyzed as Key Site 21 within the Orcutt Community Plan EIR (OCP) (County of Santa Barbara 1997). The OCP EIR analyzed full buildout of Key Site 21 assuming 150 single-family residential units and identified potentially significant, but feasibly mitigated impacts (Class II) to area roadways and intersections resulting from Key Site 21 buildout. However, no mitigation measures were identified to avoid the Key Site 21 cumulatively considerable contribution to the increase in traffic congestion within the Community Plan area (Class I).

The OCP Environmental Impact Report (EIR) evaluated 21 project-specific impacts and 3 cumulative impacts associated with Full Buildout of the OCP. Table 3.12-1 identifies the 1995 existing average daily trips (ADT) and ADT at OCP Full Buildout within the Key Site 21 vicinity. The Black Road north of SR 1 roadway segment was not quantitatively assessed in the OCP EIR, but OCP Buildout was identified as having a potentially significant traffic impact on this segment.

Table 3.12-1
OCP Full Buildout Roadways ADT Volumes

Roadway Segment	Classification	Number of Lanes	1995 Existing ADT	Buildout ADT	LOS C Threshold
Clark Ave e/o Orcutt Rd	Primary 2	4 lanes	20,900 ADT	28,600 ADT	34,000 ADT
Clark Ave w/o Foxenwood Ln	Primary 2	4 lanes	9,900 ADT	20,700 ADT	30,100 ADT
Black Road n/o SR 1	Secondary 1	2 Lanes	3,400 ADT	7,200 ADT	9,300 ADT

Table 3.12-2 identifies the 1995 existing levels of service (LOS) for intersections within the Key Site 21 vicinity and LOS for OCP EIR for Full Buildout. The Clark Avenue/Foxenwood Lane intersection was not quantitatively assessed in the OCP EIR, but OCP Buildout was identified as having a potentially significant traffic impact on this intersection.

Table 3.12-2
Full Buildout Intersection LOS – P.M. Peak Hour

Intersection	Traffic Control	Existing V/C or Delay	Buildout V/C or Delay
Clark Ave/SR 1	Two-Way Stop	2.3 sec./LOS A	8.0 sec./LOS B
Clark Ave/SR 135 SB Ramps	Signal	0.43/LOS A	0.68/LOS B
Clark Ave/SR 135 NB Ramps	Signal	0.35/LOS A	0.72/LOS C
Clark Ave/Orcutt Rd	Signal	0.50/LOS A	0.70/LOS B

The following impacts resulting from Full Buildout of the OCP were identified in the OCP EIR. Only those relevant to the Neighborhoods Specific Plan Project Area (Key Site 21) are addressed.

Impact CIRC-1: ***OCP Buildout would result in significant overall increases in traffic volumes and delays in the community.***

Buildout of the OCP would result in a 230% increase in peak hour traffic throughout the community. Delays would increase at almost all of the intersections listed in the OCP EIR, including the four intersections within the Key Site 21 vicinity. Although traffic would remain within the County's adopted stands of LOS "C" for roads and intersections, the overall increase in traffic was considered *significant unavoidable* (Class I) "…since it would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (CEQA Guidelines Appendix G[I]))."

Impact CIRC-2: ***OCP Buildout would substantially increase delays at the Clark Ave/Foxenwood intersection.***

Buildout of the OCP would increase traffic by 10,800 ADT on Clark Ave w/o Foxenwood Lane. This would result in *potentially significant* (Class II) traffic delays and safety hazards for left turn movements from Foxenwood Lane onto Clark Avenue.

Impact CIRC-2: ***OCP Buildout would substantially increase traffic on roadway Black Road n/o SR 1 and create potential safety concerns.***

OCP Buildout would result in an increase of 3,800 ADT (112% above existing) on Black Road n/o Route 1 (not noted in Table 3.12-1). The increased ADT and speed in this rural roadway would cause potentially significant safety concerns for large, slow moving farm vehicles attempting to turn onto this road. Although not exceeding any County adopted thresholds, this impact was considered *potentially significant* (Class II) "...since it would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (CEQA Guidelines Appendix G[I])."

3.12.2 Relevant Changes

Project Description Changes

Whereas the OCP EIR analyzed impacts associated with development throughout the entire Orcutt community, the 2017 Neighborhoods Specific Plan would only affect the conditions and impacts associated with buildout of Key Site 21. The location of the Neighborhoods Specific Plan lots are consistent with the development of the OCP. The 2017 Neighborhoods Specific Plan has proposed small changes related to traffic and circulation to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- The Neighborhoods Specific Plan would include three new roadways off of SR 1 to access the project site instead of "from Highway 1 and the existing golf course access road identified for Key Site 21."

These changes would reduce the overall Specific Plan buildout, ADT, and peak hour trips (PHT) relative to Key Site 21.

Regulatory Setting

Several changes to the County of Santa Barbara Thresholds of Significance for Traffic Impacts have been made since 1997 and certification of the OCP EIR. Aside from the significance criteria changes, no other changes to the County of Santa Barbara Comprehensive Plan or Land Use and Development Code have occurred since 1997 that affect the analysis of transportation. In rating roadway and intersection operations, Levels of Service (LOS) A through F are used, with LOS A indicating free flow operations and LOS F indicating congested operations (refer to Appendix D for a complete definition of Level of Service).

The changes to the significance criteria are shown in strikeout and underline below. Strikeout indicates significance criteria or portions of significance criteria that have been removed, and underlining indicates added words or numbers.

As stated in the Environmental Thresholds Guidelines Manual (County of Santa Barbara, 2008), the proposed project would result in a significant transportation impact if it would result in one or more of the following conditions:

TRANS-1: The addition of project traffic to an intersection increases the volume to capacity (V/C) ratio by the value provided below or sends at least 5, 10, or 15 trips to intersections operating at LOS F, E or D.

Table 3.12-3
Significant Changes in Level of Service

Level of Service (including project)	Increase in V/C Greater Than
A	0.20
B	0.15
C	0.10
	or the addition of:
D	15 trips
E	10 trips
F	5 trips

TRANS-2: Project access to a major road or arterial road would require a driveway that would create an unsafe situation or a new traffic signal or major revisions to an existing traffic signal.

TRANS-3: Project adds traffic to a roadway that has design features (e.g., narrow width, road side ditches, sharp curves, poor sight distance, inadequate pavement structure) or receives use which would be incompatible with substantial increases in traffic (e.g., rural roads with use by farm equipment, livestock, horseback riding, or residential roads with heavy pedestrian or recreational use, etc.) that will become potential safety problems with the addition of project or cumulative traffic. Exceedance of the roadway's designated Circulation Element Capacity may indicate the potential for the occurrence of the above impacts.

TRANS-4: Project traffic would utilize a substantial portion of an intersection(s) capacity where the intersection is currently operating at acceptable levels of service (A-C) but with cumulative traffic would degrade to or approach LOS D (V/C 0.81) or lower. Substantial is defined as a minimum change of 0.03 for intersections which would operate from 0.80 to 0.85 and a change of 0.02 for intersections which would operate from 0.86 to 0.90, and 0.01 for intersections operating at anything lower.

Environmental Setting

Tables 3.12-4 identifies the roadways and existing LOS analyzed within the Neighborhoods Specific Plan area (Stantec 2016). The bolded roadways are those that were also analyzed in the 1995 OCP traffic study.

Table 3.12-4
Existing Roadway LOS

Roadway Segment	Classification	Number of Lanes	Existing ADT	LOS C Threshold	Existing LOS
SR 1 n/o Solomon Rd	Primary 1	2 lanes	4,000 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	2 lanes	3,030 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	2 lanes	1,800 ADT	7,300 ADT	LOS A
Clark Ave e/o Broadway St	Primary 3	2 lanes	7,900 ADT	12,500 ADT	LOS A
Clark Ave w/o Foxenwood Lane	Primary 2	4 lanes	12,800 ADT	34,000 ADT	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	4 lanes	14,900 ADT	34,000 ADT	LOS A
Black Road n/o Route 1	Secondary 1	2 lanes	6,000 ADT[a]	7,300 ADT	LOS C[a]

a. Assumes Phase I and II Buildout of New County Jail (County of Santa Barbara 2008)

Tables 3.12-5 identifies the intersections and existing LOS analyzed within the Neighborhoods Specific Plan area (Stantec 2016). The bolded intersections are those that were also analyzed in the 1995 OCP traffic study.

Table 3.12-5
Existing AM and PM Peak Hour Intersection LOS

Intersection	Traffic Control	AM Peak Hour V/C Ratio or Delay	PM Peak Hour V/C Ratio or Delay
Black Road/SR 1	All-Way Stop	9.3 sec/LOS A	10.8 sec/LOS B
Solomon Rd/SR 1	Two-Way Stop	13.5 sec/LOS B	14.4 sec/LOS B
Clark Ave/SR 1	**Two-Way Stop**	**12.0 sec/LOS B**	**13.7 sec/LOS B**
Clark Ave/Broadway St	All-Way Stop	9.4 sec/LOS A	11.3 sec/LOS B
Clark Ave/Foxenwood Ln	**One-Way Stop**	**18.3 sec/LOS C**	**14.9 sec/LOS C**
Clark Ave/SR 135 SB Ramps	**Signal**	**0.48/LOS A**	**0.48/LOS A**
Clark Ave/SR 135 NB Ramps	**Signal**	**0.49/LOS A**	**0.48/LOS A**
Clarke Ave/Orcutt Rd	**Signal**	**0.56/LOS A**	**0.55/LOS A**

The discussion below addresses the changes in existing traffic conditions that have occurred since 1995.

Roadways

Existing roadway operations for the current analysis were obtained via traffic counts conducted by Stantec in May 2016. Levels of service for the roadways within the study area are based on the

County's engineering design capacities for roadways and the Circulation Element roadway designations adopted in the Orcutt Community Plan. The 1997 OCP EIR stated that all roadway segments in the vicinity of the Neighborhoods Specific Project operated at LOS C or better. All roadway segments in the study continue to operate at LOS C or better (Stantec, 2016).

Table 3.12-6 identifies the changes in the existing setting of roadways within the Neighborhoods Specific Plan vicinity compared to the 1995 OCP traffic study.

Table 3.12-6
Existing Roadway LOS, 1995 to 2016

	1995 Existing Setting		2016 Existing Setting	
Roadway Segment	**Existing ADT**	**LOS C Threshold**	**Existing ADT**	**LOS C Threshold**
SR 1 n/o Solomon Rd	N/A	N/A	4,000 ADT	15,900 ADT
SR 1 n/o Clark Ave	N/A	N/A	3,030 ADT	15,900 ADT
Solomon Rd e/o SR 1	N/A	N/A	1,800 ADT	7,300 ADT
Clark Ave e/o Broadway St	N/A	N/A	7,900 ADT	12,500 ADT
Clark Ave w/o Foxenwood Ln	9,900 ADT	31,000 ADT	12,800 ADT	34,000 ADT
Clark Ave e/o Orcutt Rd	20,900 ADT	34,000 ADT	14,900 ADT	34,000 ADT
Black Rd n/o of SR 1	3,400 ADT	7,200 ADT	6,000 ADT[a]	7,300 ADT

N/A Not assessed

a. Assumes Phase I and II Buildout of New County Jail (County of Santa Barbara 2008)

Intersections

Existing intersection operations for the current analysis were obtained via turning volume counts collected at the study area intersections by Stantec for the AM and PM peak hours in May, 2016. In both the 1997 and 2016 traffic analysiss, LOS for signalized intersections were calculated using the Intersection Capacity Utilization Methodology (ICU) and the results are shown as volume to capacity (V/C) ratio. Also, in both the 1997 and 2016 analysis, LOS for unsignalized intersections (i.e., intersections controlled by stop signs) were calculated using seconds of vehicle delay. Both analyses relied on the methodologies outlined in the Highway Capacity Manual (HCM) using Highway Capacity Software (HCS). The County considers LOS C or better during peak hour periods to be an acceptable LOS for intersections. As was the case in 1995, all study area intersections currently operate at LOS C or better during peak hour.

Table 3.12-7 illustrates changes in intersection operation in the study area between the existing conditions in 1995 and in 2016. The 1995 study did not analyze the AM peak traffic volumes and therefore comparisons are only drawn between PM peak hour traffic volumes.

Table 3.12-7
Existing PM Peak Hour Intersection Levels of Service, 1995 to 2016

Intersection	1995 Existing Setting VC / LOS	2016 Existing Setting VC / LOS
SR 1/Black Rd	N/A	10.8 sec/LOS B
SR 1/Solomon Rd	N/A	14.4 sec/LOS B
SR 1/Clark Ave	2.3 sec./LOS A	13.7 sec/LOS B
Broadway St/Clark Ave	N/A	11.3 sec/LOS B
Foxenwood Ln/Clark Ave	N/A	14.9 sec/LOS C
SR 135 SB Ramps/Clark Ave	0.43/LOS A	0.48/LOS A
SR 135 NB Ramps/Clark Ave	0.35/LOS A	0.48/LOS A
Orcutt Rd/Clarke Ave	0.50/LOS A	0.55/LOS A

N/A Not assessed

3.12.3 IMPACTS

Project Impacts

Though the 1997 OCP EIR identified a total of 24 traffic-related impacts associated with Full Buildout, only those impacts that are relevant to the Neighborhoods Specific Plan are addressed below. Relevant impacts and mitigation measures described in the 1997 EIR are described below, with corresponding analysis pertaining to the current proposed project. The impacts analysis follows the Santa Barbara Environmental Thresholds for traffic and circulation.

Impact TRANS-1: The proposed project would result in additional traffic within intersections in the project area.

1997 Impact Analysis

All intersections within the Key Site 21 vicinity were anticipated to operate at LOS C or better in the OCP Full Buildout scenario, and would not exceed County-adopted thresholds. The overall impact of these five intersections would be *adverse but less than significant* (Class III). However, the OCP identified a *potentially significant* impact at the intersection of Clark Ave and Foxenwood Lane due to substantial turning movement conflicts created by an increase of 10,800 ADT on Clark Ave w/o Foxenwood Lane.

Mitigation Measures and Residual Impacts

The OCP EIR identified one possible mitigation strategy for the impact on the Clark Ave/Foxenwood Lane intersection.

TRANS-1.1 The County shall consider re-alignment of Foxenwood Lane to align with Norris

Avenue to the west and/or construction of a landscaped center median on Clark Avenue (between Foxenwood Lane and Norris Street), to alleviate existing and future turning movement conflicts on Clark Avenue.

The residual impact on the Clark Ave/Foxenwood Lane intersection would be less than *significant* (Class II).

2018 Impact Analysis

Short-Term Construction

The Neighborhoods Specific Plan would balance all grading on site; therefore, no construction haul truck trips would be associated with import or export on and off the site. Construction employee trips would be short-term.

Construction of the Willow Creek and Hidden Canyon neighborhoods would occur over a 12- to 18-month period each. The Plan Area has been divided into four phases that would allow infrastructure improvements to be constructed at incremental stages:

1. Phase 1: Frontage improvements to SR 1 would begin in this phase. This would include addition of left turn lanes into both the Willow Creek and Hidden Canyon neighborhoods.
    a. Excavation and grading would be limited to the dry season of the year, i.e. April 1st to September 30th.
2. Phase 2: east side and/or west side development
    a. This would include installation of all international infrastructure. Includes rough grading, drainage, detention basins, water storage facilities, sewer trunk mains, and storm drain systems. Some items to be constructed may overlap, allowing for ease of construction and to meet the development demands, such as some grading for retention basins, and stockpiling the earthen material removed from the eastside development limits to west side neighborhood.
3. Phase 3: east land use (Hidden Canyon)
    a. Circulation: al surface improvements to the entire east side of the development would be completed including the emergency access road down the east property line to SR 1
    b. Infrastructure
4. Phase 4: west land use (Willow Creek)
    a. Circulation: all surface improvements to the entire west side of the development will be completed including the emergency access road between hole 1 teebox and hole 18's green area to the clubhouse parking lot

The Neighborhood Specific Plan identifies the following design guidelines to address short-term traffic effects.

1. Use of construction equipment and vehicles shall be restricted to areas located inside each building envelope. Restrict the use of heavy equipment and vehicles to areas located inside each building envelope throughout the duration of construction to minimize disturbance of natural environmental located along the fringes of the building envelopes.

2. Prior to construction, proposed access routes to each building site must be clearly marked with highly visible fencing. All construction traffic must be confined to the identified access route. Limit the use of heavy equipment and vehicles to within the pre-selected access route to minimize disturbance of natural environment located in the vicinity of each proposed development site.

3. All construction traffic for all lots will use the primary access from off-site SR 1.

4. Prior to construction, dirt hauling routes shall be established that are oriented away from property boundaries that abut existing sensitive land uses.

5. Prior to construction, vehicle staging areas shall be established that are located as far as practical from occupied structures or neighboring lots.

6. Access routes shall be located outside riparian and wetland areas.

Long-Term Operation

The Stantec 2016 Traffic Study prepared in support of the Specific Plan identified the impacts associated with the five intersections evaluated in the 1997 EIR and three additional ones. Table 3.12-8 and 3.12-9 summarize the intersection LOS for AM and PM Peak Hour, respectively, and compares them to expected LOS due to proposed project buildout.

Existing + Project delay at the Clark Ave./Foxenwood Lane unsignalized intersection would increase by 0.8 sec during the AM and 1.0 sec during the PM Peak Hour from Existing levels but would remain within the County threshold and LOS C. The project-specific impact on this intersection is therefore *adverse but less than significant* (Class III). This intersection was found to be cumulatively significant; refer to Impact TRANS-4 for that discussion.

Table 3.12-8
AM Peak Hour Existing + Project Intersection LOS

Intersection	Existing V/C Ratio or Delay	Existing + Project V/C Ratio or Delay	Change in V/C or Delay	Impact?
Black Rd/SR 1	9.3 sec/LOS A	9.3 sec/LOS A	0.0 sec	No
Solomon Rd/SR 1	13.5 sec/LOS B	15.8 sec/LOS C	2.3 sec	No
Clark Ave/Broadway St	9.4 sec/LOS A	9.8 sec/LOS A	0.4 sec	No
Clark Ave/SR 1	12.0 sec/LOS B	13.3 sec/LOS B	1.3 sec	No
Clark Ave/Foxenwood Ln	18.3 sec/LOS C	19.1 sec/LOS C	0.8 sec	No
Clark Ave/SR 135 SB Ramps	0.48/LOS A	0.49/LOS A	0.01	No
Clark Ave/SR 135 NB Ramps	0.49/LOS A	0.50/LOS A	0.01	No
Clark Ave/Orcutt Rd	0.56/LOS A	0.56/LOS A	0.00	No

Table 3.12-9
PM Peak Hour Existing + Project Intersection LOS

Intersection	Existing V/C Ratio or Delay	Existing + Project V/C Ratio or Delay	Change in V/C or Delay	Impact?
Black Rd/SR 1	10.8 sec/LOS B	10.8 sec/LOS B	0.0 sec	No
Solomon Rd/SR 1	14.4 sec/LOS B	17.3 sec/LOS C	2.9 sec	No
Clark Ave/Broadway St	13.7 sec/LOS B	14.9 sec/LOS B	1.2 sec	No
Clark Ave/SR 1	13.7 sec/LOS B	14.9 sec/LOS B	1.2 sec	No
Clark Ave/Foxenwood Ln	14.9 sec/LOS B	15.9 sec/LOS C	1.0 sec	No
Clark Ave/SR 135 SB Ramps	0.48/LOS A	0.49/LOS A	0.01	No
Clark Ave/SR 135 NB Ramps	0.48/LOS A	0.50/LOS A	0.02	No
Clark Ave/Orcutt Rd	0.55/LOS A	0.56/LOS A	0.01	No

As shown, the study-area intersections with buildout of the Neighborhoods Specific Plan would continue to operate in the LOS A-C during both the AM and PM peak hour under specific condition, which is considered acceptable based on County standards. Project-specific intersection impacts would therefore be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impacts

As project-specific impacts related to intersections operations would be *less than significant*, no mitigation measures are required. The residual impact on traffic would be *adverse, but less than significant* (Class III), and would be less than projected in the OCP FEIR.

Impact TRANS 1-a: The proposed project would result in additional traffic within roadways in the project area.

1997 Impact Analysis

The 1997 OCP EIR forecasted buildout ADT volume for primary and secondary streets and found some to be exceeding LOS C thresholds. However, the three roadways in the vicinity of the Neighborhoods project site would remain within the County-adopted LOS C standards. The project-specific impact of Key Site 21 would therefore be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impacts

As project-specific impacts on roadway traffic would be less than significant, no mitigation measures were necessary.

2018 Impact Analysis

Short-Term Construction

The proposed Neighborhoods Specific Plan does not except any significant short-term impacts on traffic as it would balance all grading on site.

Long Term Operation

The 2016 Stantec traffic study analyzed the three relevant roadways identified in the 1997 EIR, in addition to three more roadways. Table 3.12-10 identifies the average daily traffic (ADT) of Existing + Project conditions. As shown, all roadways would remain well under the LOS C threshold for roadway traffic after buildout of Neighborhoods Specific Plan. The project-specific impact on roadways would be *adverse, but less than significant* (Class III).

Table 3.12-10
Existing + Project Roadway LOS

Roadway Segment	Classification	Existing ADT	Existing + Project ADT	LOS C Threshold	Existing + Project LOS
SR 1 n/o Solomon Rd	Primary 1	4,000 ADT	5,320 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	3,030 ADT	3,933 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	1,800 ADT	2,217 ADT	7,300 ADT	LOS A
Clark Ave e/o Broadway St	Primary 3	7,900 ADT	8,624 ADT	12,500 ADT	LOS A
Clark Ave w/o Foxenwood Ln	Primary 2	12,800 ADT	13,295 ADT	34,000 ADT	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	14,900 ADT	15,387 ADT	34,000 ADT	LOS A

Mitigation Measures and Residual Impacts

As impacts related to roadway operations with buildout of the Neighborhoods Specific Plan would be *less than significant*, no mitigation measures are necessary. The residual impact on traffic would be *adverse, but less than significant* (Class III), and would be less than projected in the OCP FEIR.

Impact TRANS-2: The proposed project would require the construction of new access roadways to the project site, but would not introduce unsuitable design features.

1997 Impact Analysis

The proposed access roadways are specific to the Neighborhoods Specific Plan and were not evaluated in the OCP EIR.

2018 Impact Analysis

Access to the site is proposed via three new roadways off of Route 1. One connection is proposed at the western boundary of the site and the two connection are proposed between the Rancho Maria Golf Course driveway and the eastern boundary of the site. The most eastern (secondary) connection will be restricted to right-turn in-and-out only. Because SR 1 is a State facility, the intersections would conform to the design criteria contained in Section 405.7 of the Highway Design Manual. The proposed improvements on Route 1 would be subject to review and approval by Caltrans.

Mitigation Measures and Residual Impacts

As no impacts would occur relative to transportation design features, no mitigation would be required. Residual impacts resulting from buildout of the Neighborhoods Specific Plan on transportation design would be *adverse but less than significant* (Class III), and similar to OCP Buildout.

Impact TRANS-3: The proposed project would add traffic to Black Road n/o Route I, which would lead to potentially significant safety concerns associated with increased traffic on a rural road used by farm vehicles.

1997 Impact Analysis

The OCP EIR found that Full Buildout would lead to an increase of 3,800 ADT (112% above 1995 existing levels) on Black Road n/o Route I. This rural road is commonly used by large, slow moving farm vehicles, and the increase in traffic would create a potentially significant safety concern as it would make it more difficult for these vehicles to turn onto the road, particularly if it becomes a higher speed road. Although not exceeding any County adopted thresholds at the time, the OCP EIR considered this impact *potentially significant* "...since it will cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (CEQA Guidelines Appendix G(I))."

Mitigation Measures and Residual Impacts

The 1997 OCP EIR identified the following mitigation measure for this impact:

TRANS-3.1 In its long-range land use planning efforts, the County shall seek to provide access to retail, commercial, recreational, and educational facilities via transit lines, bikeways, and pedestrian trails.

2018 Impact Analysis

Buildout of the Neighborhoods Specific Plan is expected to result in an addition of 70 ADT on the roadway of Black Road n/o Route 1 (personal communication, Dennis Lammers, 2017). This impact is considered *adverse, but less than significant* (Class III).

As impacts related to roadway operations with buildout of the Neighborhoods Specific Plan would be *less than significant*, no mitigation measures are necessary. The residual impact on traffic would be *adverse, but less than significant* (Class III), and would be less than projected in the OCP FEIR.

3.12.4 Cumulative Impacts

Cumulative Baseline Conditions

The cumulative forecasts assume development of the approved and pending projects in Orcutt and Santa Maria Valley, including the Orcutt Community Plan. Review of the most updated list of cumulative projects (July, 2015) indicates no major area-wide development changes have occurred compared to forecasts developed for the Bradley Village (Key Site 30) SEIR (2013) and the Rice Ranch Specific Plan EIR (2015). Pending and approved projects that have a direct effect on the study-area roadway network include the North County Jail GPA (Black Rd & Betteravia Rd), the Orcutt Union Plaza and Key Site 17 (Old Town Orcutt), Key sites 11 and 18 (Oasis Community Center) and the Rice Ranch Specific Plan (Stantec Traffic Study, 2016).

Impact TRANS-4: The proposed project would contribute to cumulative traffic within intersections in the project study area.

1997 Impact Analysis

The OCP EIR identified a 230% increase in peak hour traffic in the entire Orcutt Community area as a result of Full Project Buildout. With buildout of the OCP, typical levels of traffic congestion in Orcutt would have made the transition from semi-rural free flow on often lightly traveled and controlled streets to more urban, although acceptable, levels of congestion found in communities such as Santa Maria and Goleta. The overall impact of the OCP Buildout is considered *significant unavoidable* (Class I) as it would cause substantial increase in the cumulative traffic of intersections within the project study area.

Mitigation Measures and Residual Impacts

The OCP EIR identified one mitigation measure to reduce the overall cumulative impact Full Buildout would have on the Orcutt community:

TRANS-4.1 Roadway and intersection widenings at major locations, construction of UVP from Blosser to US 1, traffic calming devices on smaller collector roads, expansion of SMAT service and transit-oriented infrastructure, increased funding for bikeways, walkways and transit, mixed-use and high density land use planning and development, TDM measures.

Despite mitigation measures, the community-wide increase in intersection traffic due to OCP buildout was determined to be *significant and unavoidable* (Class I).

2018 Impact Analysis

The 1997 EIR found that OCP Buildout project would lead to a substantial increase in traffic within intersections in the OCP plan area. This community-wide impact was determined significant and unavoidable (Class I). The 2017 Impact Analysis only addressed Key Site 21 within the OCP and determined that traffic in all eight project-specific intersections considered would continue to operate at LOS A-C during both the AM and PM peak hours. Project-specific intersections impacts resulting from the Neighborhoods Specific Plan project would therefore be *adverse but less than significant* (Class III).

Tables 3.12-11 and 3.12-12 show the cumulative and cumulative plus project AM and PM level of services for the study area. The tables indicate that the project would generate a cumulative impact at the Foxenwood Lane/Clark Avenue intersection during the AM and PM peak hour by adding delay to the southbound traffic movement, resulting in LOS D operations and would surpass the County thresholds for traffic. Planned mitigation measures that would reduce these cumulative impacts to a level of insignificance therefore this is a Class II impact. The 1997 OCP EIR also identified a *significant, but feasibly mitigated* impact (Class II) associated with increase traffic at the Clark Ave/Foxenwood Lane intersection. Please refer to Impact TRANS-1.

Table 3.12-11
AM Peak Hour Cumulative + Project Intersection LOS

Intersection	Cumulative V/C Ratio or Delay	Cumulative + Project V/C Ratio or Delay	Change in V/C or Delay	Impact?
SR 1/Black Rd	10.8 sec/LOS B	10.8 sec/LOS B	0.0 sec	No
SR 1/Solomon Rd	16.3 sec/LOS C	19.4 sec/LOS C	3.1 sec	No
SR 1/Clark Ave	13.4 sec/LOS B	15.1 sec/LOS C	1.7 sec	No
Broadway St/Clark Ave	12.3 sec/LOS B	13.2 sec/LOS B	0.9 sec	No
Foxenwood Ln/Clark Ave	**24.4 sec/LOS C**	**26.1 sec/LOS D**	**1.7 sec**	**Yes**
SR 135 SB Ramps/Clark Ave	0.66/LOS B	0.67/LOS B	0.01	No
SR 135 NB Ramps/Clark Ave	0.62/LOS B	0.63/LOS B	0.01	No
Orcutt Rd/Clarke Ave	0.74/LOS C	0.74/LOS C	0.00	No

Table 3.12-12
PM Peak Hour Cumulative + Project Intersection LOS

Intersection	Cumulative V/C Ratio or Delay	Cumulative + Project V/C Ratio or Delay	Change in V/C or Delay	Impact?
SR 1/Black Rd	14.7 sec/LOS B	15.0 sec/LOS B	0.3 sec	No
SR 1/Solomon Rd	19.2 sec/LOS C	23.8 sec/LOS C	4.6 sec	No
SR 1/Clark Ave	17.3 sec/LOS C	19.2 sec/LOS C	1.9 sec	No
Broadway St/Clark Ave	19.4 sec/LOS C	24.0 sec/LOS C	4.6 sec	No
Foxenwood Ln/Clark Ave	**23.2 sec/LOS C**	**25.6 sec/LOS D**	**2.4 sec**	**Yes**
SR 135 SB Ramps/Clark Ave	0.72/LOS C	0.73/LOS C	0.01	No
SR 135 NB Ramps/Clark Ave	0.60/LOS A	0.60/LOS B	0.01	No
Orcutt Rd/Clarke Ave	0.75/LOS C	0.76/LOS C	0.01	No

Mitigation Measures and Residual Impacts

The 1997 OCP EIR identified mitigation measure TRANS 4.1. Measures 4.2 through 4.4 are identified for the proposed Neighborhoods Specific Plan.

TRANS-4.1 The County shall consider re-alignment of Foxenwood Lane to align with Norris Avenue to the west and/or construction of a landscaped center median on Clark Avenue (between Foxenwood Lane and Norris Street), possibly restricting left-turns.

TRANS-4.2 Widening of the southbound approach to provide for separate left-turn and right-turn lanes would reduce the delays to an acceptable LOS C level.

TRANS-4.3 The applicant shall pay transportation fees to the County to provide its proportionated share of project contributions to cumulative impacts on traffic and circulated systems maintenance, in an amount determined by the County Public Works/Transportation Division; based on adopted fees and schedules at the time of payment.

TRANS-4.4 The Oasis Community Center, proposed on Key Site 18 located at the northwest corner of the intersection, includes a frontage improvement that will widen Foxenwood Lane at Clark Ave. The Oasis Community Center is currently under review by County Public Works. If approved, it would also mitigate levels of service to be maintained at LOS C.

With implementation of these measures, the cumulative impacts on the Clark Ave and Foxenwood Lane intersection would be *significant but feasibly mitigated* (Class II).

Table 3.12-13
Cumulative + Project Mitigated Intersection Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Cumulative+ Project	Cumulative + Project Mitigated	Cumulative+ Project	Cumulative + Project Mitigated
Foxenwood Ln/Clark Ave	26.1 sec/LOS D	21.5 sec/LOS C	25.6 sec/LOS D	21.5 sec/LOS C

Impact TRANS 4-a: The proposed project would contribute to cumulative traffic on roadways in the project study area.

1995 Impact Analysis

As noted in Impact TRANS-4, the OCP EIR identified a 230% increase in peak hour traffic in the entire Orcutt Community area as a result of Full Project Buildout. This increase in traffic would have a *significant and unavoidable* (Class I) impact on roadways in project study area.

Mitigation Measures and Residual Impacts

The community-wide impact on roadways is a Class I impact; no mitigation measure that would significant reduce the impact was identified.

2014 Impact Analysis

Table 3.12-14 shows the cumulative and cumulative plus project level of service calculation for the study area roadways. As shown, the study-area roadway segments would continue to operate in the LOS A range under cumulative plus project conditions. The project would result in less than significant impacts on roadways under cumulative conditions (Class III).

Table 3.12-14
Cumulative + Project Levels of Service

Roadway Segment	Classification	Cumulative ADT	Cumulative + Project ADT	LOS C Threshold	Existing + Project LOS
SR 1 n/o Solomon Rd	Primary 1	5,300 ADT	6,620 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	4,300 ADT	5,203 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	2,000 ADT	2,417 ADT	7,300 ADT	LOS A
Clark Ave e/o Broadway St	Primary 3	8,300 ADT	9,064 ADT	12,500 ADT	LOS A
Clark Ave w/o Foxenwood Ln	Primary 2	13,500 ADT	14,195 ADT	34,000 ADT	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	19,500 ADT	19,987 ADT	34,000 ADT	LOS A

Mitigation Measures and Residual Impacts

The cumulative impact on roadways in the Neighborhoods Specific Plan project area would be *adverse but less than significant* (Class III); therefore no mitigation measure is required. The residual impact on cumulative traffic would be adverse, but less than significant, and less than the OCP Buildout.

3.12.5 Congestion Management Plan Analysis

In addition to Santa Barbara County, the Santa Barbara County Association of Governments (SBCAG) has developed a set of traffic impact thresholds to assess the impacts of land use decisions made by local jurisdictions on regional transportation facilities located within the Congestion Management Program (CMP) roadway system. The guidelines below were developed by SBCAG to determine the significance of project-generated traffic impacts on the regional CMP system and are also included as significance criteria for evaluating the potential impacts of the proposed project, as listed below. Since the time of the 1997 OCP EIR, the CMP has been updated (SBCAG 2009). However, no changes were made to the CEQA thresholds, which are listed as follows:

TRANS-6: For any roadway or intersection operating at LOS A or B, a decrease of two levels of service resulting from the addition of project-generated traffic.

TRANS-7: For any roadway or intersection operating at LOS C, project-added traffic that results in LOS D or worse.

TRANS-8: For intersections within the CMP system with existing congestion, the following defines significant impacts.

Level of Service	Project-Added Peak Hour Trips
LOS D	20
LOS E	10
LOS F	10

TRANS-9: For freeway or highway segments with existing congestion, the following defines significant impacts.

Level of Service	Project-Added Peak Hour Trips
LOS D	100
LOS E	50
LOS F	50

Impact TRANS-6: ***The proposed project would add traffic to CMP roadways in the project study area.***

1997 Impact Analysis

Orcutt roadways in the vicinity of the Neighborhoods Project that were designated as part of the CMP system include Highway 101, Highway 135, Highway 1, Clark Avenue, Bradley Road. All Orcutt CMP intersections will operate above the CMP LOS D or better threshold (after mitigation) under the full buildout scenarios. Therefore, this was determined to be an *adverse but less than significant impact* (Class III).

Mitigation Measures and Residual Impacts

As impacts related to increased traffic on CMP roadways would be less than significant, no mitigation measures are necessary. The residual impact would be *adverse but less than significant* (Class III).

2018 Impact Analysis

The project would add 88 northbound PHT and 78 southbound PHT to SR 1 north of Clark Avenue, and 9 Northbound PHT and 8 Southbound PHT to SR 1 south of Clark Avenue. The traffic analysis and 2009 CMP monitoring report indicates that both segments of SR 1 operate in the LOS A range in during the peak hour.

The project would add 12 northbound PHT and 14 southbound PHT to SR 135 north of Clark Avenue. The 2009 CMP monitoring report indicates that the segment of SR 135 north of Clark Avenue operates in the LOS A/B range in during the peak hour.

Based on the CMP impact criteria (minimum of 100 peak hour trips in each direction at LOS D operations), the project would have less than a significantly impact on SR 1 and SR 135 operations.

Mitigation Measures and Residual Impacts

As the impact would be *less than significant*, no mitigation measure is required. The residual impact on cumulative traffic would be adverse, but less than significant, and less than the OCP Buildout.

Impact TRANS-7. ***The proposed project would result in additional traffic within CMP intersections in the project area.***

1997 Impact Analysis

The CMP intersections considered in the OCP are not relevant to the Neighborhoods Specific Plan.

Mitigation Measures and Residual Impacts

As impacts to CMP intersections were projected to be less than significant, no mitigation measures were required. The residual impacts on CMP roadways was anticipated to be *adverse but less than significant* (Class III).

2018 Impact Analysis

The intersections of Clark Avenue with SR 135 and Bradley Road are included in the CMP network. The analysis indicated that the intersections of Clark Avenue with SR 135 would operate at LOS C or better under existing plus project and cumulative plus project conditions. The analysis completed for the Clark Avenue/Bradley Road intersection contained in the traffic study for the Rice Ranch Specific Plan indicates that the intersection also operates at LOS C or better under existing plus project and cumulative plus project conditions. These values are consistent with the CMP thresholds outlined previously.

Mitigation Measures and Residual Impacts

As the impact would be *less than significant*, no mitigation measure is required. The residual impact on cumulative traffic would be adverse, but less than significant, and less than the OCP Buildout.

References

Santa Barbara County Association of Governments (SBCAG). 2009. *Santa Barbara County. Congestion Management Program*. Santa Barbara, CA: SBCAG. Approved June 18, 2009. Accessed May 9, 2014. http://www.sbcag.org/publications.html.

Santa Barbara County. 2008. *New County Jail Subsequent Environmental Impact Report, Project No. 07EIR-00000-00003, SCH No. 20007111099*. Rincon Consultants.

Stantec. 2015. *Rice Ranch Specific Plan Revised Traffic and Circulation Study – Orcutt, County of Santa Barbara*. Santa Barbara, CA: Penfield and Smith. June 2.

3.13 WATER RESOURCES

This section addresses potential impacts to water resources that would result from buildout of the Neighborhoods Specific Plan.

3.13.1 Previous CEQA Review

Orcutt Community Plan

The OCP FEIR determined that build out of the OCP would result in *significant and unavoidable impacts* (Class I) to water resources associated with increased overdraft at full Plan build out. Site specific analysis was not performed for water resources at Key Site 21 (the Project site).

Orcutt Community Plan Development Standards and policies for water resources that pertain to County staff include the Policy WAT-O-1 and Program WAT-O-1.1, which call for the County to assist in preparation and implementation of a long-term Water Supply Program. Action WAT-O-1.4 requires the County to review and report water supply issues in the Orcutt Planning Area. Action WAT-O-1.2 calls for the creation community services district if the Water Supply Program cannot be pursued. Action WAT-O-3.1 calls for the creation of a county-wide Water Conserving Landscape Design Program. Policy WAT-O-4 states that previous agricultural historic uses shall not be credited toward water demand for urban development.

Orcutt Community Plan Development Standards and policies for water resources that pertain to the new development include DevStd WAT-O-1.3, which creates an infrastructure financing program that requires developers to pay fees sufficient to offset increased water demand to ensure that residents do not have to pay for water supplies necessary to serve new development (Policy WAT-O-6). Policy WAT-O-2 requires that new development must be offset by long-term supplemental water supplies that do not result in further overdraft of the local groundwater basin and that are adequate to meet the project's new water demand. Supplemental water is defined as a source of water other than groundwater, unless the groundwater basin has determined to no longer be in overdraft or the use of groundwater is consistent with the final water rights judgement entered in the Santa Maria Groundwater Basin adjudication.

If the Basin is in a state of overdraft and the use of groundwater is not consistent with the adjudication, projects must provide either a "Can and Will Serve" letter from the California Cities Water Company dated before July 1997 or an "Intent to Serve" letter from the California Cities Water Company or other water purveyors demonstrating that net water demand will be offset by a long-term supplemental water supply (DevStd Wat-O-2.2). If that is not feasible, the applicant must demonstrate adequacy of the water supply proposed to serve the project as described in DevStd Wat-O-2.2.

Other policies relevant to new development include Policy WAT-O-3, which states that development in Orcutt shall incorporate water efficient design and technology, and Policy WAT-O-5 which requires water used to serve new development in Orcutt to have a TDS level of no greater than 425 mg/L.

The following potentially significant impacts resulting from Full Buildout of the OCP were identified in the OCP EIR:

Impact WAT-1: ***Increased overdraft by 2006.*** Residential, commercial-industrial, municipal and agricultural growth within the Orcutt Planning Area projected to occur over the next ten years would create potentially significant impacts to groundwater resources as this growth would contribute substantially to ongoing and increased overdraft of the Santa Maria Groundwater Basin by generating an increase in net water demand of 1,610 acre feet per year (AFY).

Impact WAT-2: ***Increased overdraft at buildout.*** Residential, commercial-industrial, municipal and agricultural growth within the Orcutt Planning Area permitted under buildout of the proposed Community Plan would create potentially significant impacts to groundwater resources as this growth would contribute substantially to ongoing and increased overdraft of the Santa Maria Groundwater Basin by generating an increase in net water demand of 3,304 AFY.

3.13.2 Relevant Changes

Project Description Changes

The 2017 Neighborhoods Specific Plan has proposed small changes related to the previously approved development plan for Key Site 21 in the 1997 OCP EIR:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- The gross water demand of the Neighborhoods Specific Plan is estimated to be 176.7 AFY and the net consumptive use is estimated to be106.02 AFY.
- The Neighborhoods Specific Plan would rely solely on Santa Maria Groundwater Basin resources pumped from on-site wells.
    - Based on a conservative value of 3 gallons per minute per feet (gpm/ft.) of aquifer thickness for the Santa Maria Basin, it is feasible for the well to produce 600 gpm (Kear and Becker 2018).
    - TDS concentration of well water is estimated to be between 607 and 615 mg/L (Kear and Becker 2018).
- Neighborhoods Specific Plan Sustainable Design Features would reduce indoor and outdoor water use by 20 percent.
    - <u>Indoor</u>:
        - All hot water lines would be insulated.
        - Water pressure would not exceed 50 pounds per square inch (psi). Water pressure greater than 50 psi would be reduced to 50 psi or less by means of a pressure-reducing valve.
        - Recirculating, point-of-use, or on-demand water heaters would be installed.

- Low-flow plumbing fixtures would be used, including 1.6 gallons-per-flush toilets; water-efficient clothes washers and dishwashers would be installed.

- Outdoor:
  - Incorporation of drought-tolerant trees, shrubs, and groundcovers compatible with the natural surroundings and the community's architectural theme in The Neighborhoods Landscape Concept Plan.
  - The plant selection would encourage compatible, non-invasive, climate-suitable and drought-tolerant landscape designs, and plants would be grouped by water needs.
  - Evapotranspiration irrigation controllers would be provided, and private irrigation systems are encouraged to be designed to apply water slowly, allowing plants to be deep soaked and reduce runoff.
  - Water-efficient systems, such as drip or bubblers, are encouraged in all areas needing irrigation except turf irrigation and small ornamental plantings.
  - Efficient use of water from the roof drains for landscape irrigation would also be encouraged.
  - Water efficient systems would comply with the Governor's emergency drought declaration and recent changes to the State Model Water Efficient Landscape Ordinance and California Green Building Code.

Regulatory Setting Changes

No changes to the County of Santa Barbara Comprehensive Plan, or Land Use and Development Code have occurred since 1997 that affect the analysis of water resources. While the *County of Santa Barbara Thresholds Manual Groundwater Threshold Guidelines* have been updated since the 1997 OCP FEIR was prepared, no changes have been made to the significance criteria for assessing geologic impacts. As in 1997, water resource impacts would be considered significant if the amount of new pumpage by a proposed project would place the aquifer in a state of overdraft. For the Santa Maria Basin, this amount is 25 AFY of net new use.

Water rights to the Santa Maria Basin were adjudicated by the five-phase trial *Santa Maria Valley Water Conservation District vs. City of Santa Maria, et. al* (Superior Court, County of Santa Clara, Case no. 770214). The Superior Court of California, County of Santa Clara, passed down the Stipulation of the Santa Maria Groundwater Basin Litigation in 2008 in order to ensure the Basin's long-term sustainability. All overlying owners in the court-designated Santa Maria Valley Management Area that also signed the Stipulation (settlement agreement) were entitled to prior and paramount overlying rights whether or not those rights have been exercised. The Neighborhoods Specific Plan water rights are covered by this settlement agreement.

Existing Setting

The Neighborhoods Specific Plan area overlies the Santa Maria Groundwater Basin and is within the Santa Maria Valley Management Area. The Rancho Maria Golf Course (RMGC) currently obtains its water supply from the Santa Maria Groundwater Basin through an onsite well. Existing water demand consists of domestic use at the Golf Course Clubhouse and Golf Course irrigation.

3.13.3 Impacts

Impacts and mitigation measures described in the 1997 EIR are incorporated below, with corresponding analysis pertaining to the current proposed project. Impacts identified in the 1997 EIR are compared with those that are anticipated to occur under the current proposed project.

Impact WAT-1: *Buildout of the Specific Plan would not result in an increase in demand on the overdrafted Santa Maria Groundwater Basin.*

1997 Impact Analysis

The OCP EIR identified *potentially significant* (Class II) impacts to water resources in the OCP Area associated with residential, commercial-industrial, municipal and agricultural growth which would contribute substantially to ongoing and increased overdraft of the Santa Maria Groundwater Basin by generating an increase in net water demand greater of 3,304 AFY at full buildout.

Mitigation Measures and Residual Impact

The existing policies described in Section 3.13.1 "CEQA Review" would serve to reduce these impacts.

The OCP also identified measures that would minimize potential water resource impacts:

WAT-1: All new development within the Orcutt Planning Area shall pay fees sufficient to offset its increased water demand, including the costs of planning and implementation of new conservation / water supply projects.

WAT-2: The County shall actively pursue the formation of a Community Services District or other special district encompassing the Orcutt Planning Area in order to provide for public control of the planning and implementation of new water supply and conservation measures for the community.

WAT-3: The County shall encourage the California Cities Water Company to obtain additional permanent entitlement to the State Water Project or other out-of-basin supplemental water supply through long-term exchange agreement if such supplies become available.

WAT-4: The County shall require that the maximum feasible water conservation measures be included in all new development projects. (Specific conservation measures are listed in the Example Water Supply Program discussed in the 1997 OCP EIR).

The residual impact on water resource after mitigation was identified as *significant but feasibly mitigated* (Class II) if a firm commitment were made by the involved water purveyors and agencies to purchase out-of-basin permanent supplemental supplies to offset the new demand associated with buildout under the OCP, or *significant and unavoidable* (Class I) if no firm commitment had been made.

2018 Impact Analysis

Water Demand

Projected water demand for the Neighborhoods Specific Plan is described in Table 3.13.1. Total water demand for the project would exceed the County threshold of withdrawals from the Santa Maria Groundwater Basin of 25 AFY. However, the use of groundwater to serve the development under the Neighborhoods Specific Plan is consistent with the final water rights Stipulation entered in the Santa Maria Groundwater Basin adjudication, and meets the definition of "supplemental" water set forth in OCP Policy WAT-O-2. Therefore, the Neighborhoods Specific Plan's water demand is legally considered to be offset by long-term supplemental water supplies and would not result in further overdraft of the Santa Maria Groundwater Basin. Therefore, impacts on the overdrafted Santa Maria Groundwater Basin would be *adverse, but less than significant* (Class III).

Table 3.13.1. Projected Specific Plan Water Demand

Residential			
Neighborhood	**Number of Units**	**AFY/Unit**	**AFY/Total**
"Hidden Canyon"	56	0.97	54.54
"Willow Creek"	90	0.97	87.66
		Total Gross Residential Development Demand	**142.20**
Home Owners Association Maintained Irrigated Demand			
Acres		**AFY/Acre**	**Irrigated AFY**
23		1.5 (2.)	34.50
		Total Gross HOA Irrigated Demand	**34.50**
		Total Project Gross Water Demand	**176.70 AFY**
		Total Project Net Water Demand (3.)	**106.02 AFY**

1. The Estate lot average size is 15,000 sf. An interpolated AFY/unit value was determined using the County Thresholds manual for 13,400 s.f. lots and 20,000 s.f. lots.
2. The County Thresholds manual for miscellaneous landscaping, average of "Green lawns" and "Not so Green Lawns" and gardens.
3. The County Thresholds manual for net consumptive use: Gross Demand x C.U. Factor (0.60) for Orcutt Area – Sandy Soil.

Mitigation Measures and Residual Impacts

As impacts on Water Resources would be less than significant, no mitigations are required. Standard OCP Policy design guidelines would be required:

WR-1: In order to reduce the long-term increase in water demand, the applicant shall adhere to the following measures which includes a modified list of the landscape design recommendations identified in the OCP FEIR (Section 5.6-13), and additional Indoor Design measures.

Exterior water use shall be minimized through the use of water efficient techniques, including:

- Turf shall constitute less than 25% of the total landscaped area;
- No turf shall be allowed on slopes over 4%;
- Require appropriate turf types – warm season grasses;
- Extensive mulching (2-inch minimum depth) shall be used in all landscaped areas to improve the water holding capacity of the soil by reducing evaporation and compaction;
- Soil moisture sensing devices and rain shutoff devices shall be installed to prevent unnecessary irrigation. Training and advise in how to properly use these systems should be provided; Provide information about efficient watering techniques (especially in sandy soil) and how to use weather information to schedule irrigations (there is a weather monitoring station in the Santa Maria Area);
- Distribute information brochures on design (plants, irrigation systems) and irrigation techniques to home buyers;
- Intermittent permeable surfaces such as French drains shall be used for parking areas and driveways; and
- Separate landscaping water meters shall be installed.

Implementation of the above standard guidelines would minimize less than significant Project water demands. The residual impact on water resources would be *adverse, but less than significant* (Class III).

Water Infrastructure

Long-term water supplies would be feasibly provided by onsite wells. Based on the gross Project water demand of 176.7 AFY, a pumping demand of 424 gallons per minute would need to be met at a 75-percent use factor, 282 gallons per minute at a 100-percent use factor, and 565 gallons per minute at a 50-percent time use factor (Kear and Becker 2018). No Project well drilling has occurred, but an extensive well feasibility study conducted by Kear and Becker (2018) was undertaken to evaluate the potential for wells to provide a long-term source.

Water well records from a number of sources were reviewed, including the Santa Barbara County Environmental Health Services (via parcel-by-parcel public review requests), the Department of Water Resources (via the Water Data Library and the Well Completion Report Map Application), the United States Geologic Survey (via the National Water Information System), as well as directly from local water well drillers and an in-house database. Oil well records were also reviewed and accessed from the Department of Conservation, Division of Oil, Gas, and Geothermal Resources, and local geologic cross-sections are available from the USGS' Professional Paper 222.

Several water wells are currently active or have historically been present near the proposed Specific Plan primary well and back-up well locations, located west of the existing RMGC entrance with SR 1. Records indicate at least four wells within the RMGC, but only one is presently active. Most wells in the vicinity serving agricultural operations are adjacent to SR 1 given the proximity to power sources along the road and proximity to the local syncline axis.

Most wells drilled prior to the 1950s are approximately 200 ft. deep. These wells likely penetrated the highly-permeable Orcutt Formation, but many suffered from casing issues (such as sand production) or exhibited a water level decline by the 1970s that rendered production rates unfavorable. Since the nadir of the drought in 1977, relatively shallower water levels have allowed many of these wells to be useful again in recent decades, with production rates on the order of 200 gpm.

The Paso Robles Formation is considered the principal target for groundwater development at the site. This geologic formation extends approximately 1,500 feet below the recommended well exploration depth and reaches its maximum thickness along the Santa Maria Valley Syncline (mapped about one-third mile to the northeast and locally sub-parallel to the State Route 1 (SR 1).

Low-lying portions of Santa Maria Basin are filled with Quaternary and Tertiary-aged alluvium of largely fluvial origin, with sediment derived from the weathering and erosion of the surrounding mountains. The youngest (Quaternary) deposits consist of older, dissected Pleistocene-aged sediments and recent, Holocene-aged sediments. Local active alluvial deposition (Qa) occurs along Orcutt Creek's channel and floodplain. Within the proposed Specific Plan well areas, the shallowest materials are the older dune sand deposits (Qos) and the Orcutt Sand/Formation (Qo). The late Pliocene to early Pleistocene-aged Paso Robles Formation (QTp) unconformably underlies the shallow Orcutt deposits and comprises the primary target aquifers for proposed Specific Plan wells.

The weakly-consolidated Paso Robles Formation consists mainly of conglomeratic, sandstone, and mudstone strata of non-marine deposition. Older sedimentary rocks such as the Paso Robles Formation can yield significant quantities of groundwater to wells, especially where only partially cemented, unconsolidated, weathered, or highly fractured formations exist that increase porosity and permeability. Groundwater is mostly stored as semi-confined to confined aquifers within interconnected lenses of sand and gravel.

In the Santa Maria Basin, the Paso Robles Formation is highly permeable due to a significant percentage of gravel and sand layers (up to 50% of formation thickness), with wells producing as much as several thousand gpm. The formation reaches a maximum thickness of about 2,000 feet along the synclinal axis of the basin, a linear northwest-southeast-trending feature that is mapped only about one-third mile to the northeast of the recommended Primary and Backup Well locations.

The Paso Robles Formation is underlain by the semi-consolidated marine sandstone of the Pliocene-aged Careaga Sand, followed by older marine rocks of Pliocene and Miocene age, including the Foxen Mudstone, the Sisquoc Formation, and the Monterey Shale. Although the Careaga Sand (primarily its upper Graciosa Member) is both a target for many water wells in Santa Barbara County and considered the basal unit of the Santa Maria Basin, the formation is too deep to be considered an economically-viable target for this project.

The recommended northern locations for the Specific Plan Primary and Backup Wells reflect a combination of: (1) the closest proximity to the syncline axis, the valley's dominant geologic structure; and (2) logistical considerations including existing RMGC golf course operations and planned development. When equipped with 10-inch-diameter casings, pumps, and power, wells at this depth and location would appear to be capable of producing upwards of several hundred gallons per minute (gpm) under current hydrologic conditions. Each well would individually be capable of meeting the anticipated project requirements (with a gross demand of 176.7 acre-ft. per year that does not account for the 40 percent reduction in demand resulting from the net consumptive use demand of 60 percent for the Orcutt Area). Construction of the two wells should be conducted on a single driller's mobilization to benefit from an economy of scale. Concurrent casing and material selection would also be streamlined, as well as testing and development of the two wells.

Groundwater Quality

Existing wells in the Project vicinity are characterized by a range of water quality resulting from the differences between aquifers: wells in the Paso Robles Formation have generally higher-quality water versus the poorer-quality drawn from shallower or deeper formations. Recent groundwater quality data from 2016 indicate that local total dissolved solids (TDS) concentrations in the shallower aquifer zones generally ranged between 700 and 800 mg/L and between 650 and 800 mg/L in the deeper zones.

Water quality data from 2008 to 2012 for the nearby existing RMGC course well drilled to approximately 600 ft. reveal a calcium-sulfate groundwater character with a TDS concentration of 615 mg/L and a pH of 7.3 to 7.4. Detailed water quality analyses indicated no significant impediments to public service of this groundwater. Importantly, nitrate (a problem elsewhere in the Santa Maria Basin, especially in shallower aquifer zones) was detected at 1.57 mg/L as N (with a maximum contaminant level of 10 mg/L). These characteristics are reasonably expected to reflect recommended Primary and Backup Wells water quality. Given that the proposed wells would be constructed with contemporary practices and infrastructure, proposed Primary and Backup Wells would be expected to have slightly improved water quality over the existing RMGC well. Therefore, potential water quality impacts associated with proposed Specific Plan wells would be *adverse, but less than significant* (Class III). No special treatment measures would be required.

Well Interference

Kear and Becker (2018) modeled and calculated various scenarios to estimate the effect of theoretical pumping of the Primary Well (at various rates) on proximal existing wells. Pumping the Primary or Backup Wells would induce a very gentle cone of depression that would extend for a few

miles around the wells. Most proximal wells (including the active RMGC well) would have induced drawdowns between 0.5 and 1 foot under the 104 gpm rate at 1 day of pumping. Following 0.25 days (6 hours) of pumping at 416 gpm, the induced drawdown was calculated to be less than 4.0 ft. at an estimated 130 feet radial distance from the well, less than 3.0 ft. at an estimated 375 feet, less than 2.0 ft. at an estimated 1,070 feet, and less than 1.0 ft. at an estimated 3,150 feet from the Specific Plan wells. The radius of "no influence," or zero drawdown, is modeled to be around 8,800 horizontal feet. Most existing wells in the Project vicinity, including the RMGC well, would have induced drawdowns between 1 and 3 ft.

Based on the analysis described above, modeled interference between the recommended Primary and or Backup Wells and existing wells in the vicinity would be measurable but less than significant. The greatest effects are estimated to occur when wells are pumped at high rates and longer durations. Since the higher rates would meet Project demands in shorter durations, these values are considered highly conservative.

Additionally, due to the steep formation dips towards the syncline axis, there is generally indirect correlation of aquifer units in between the recommended Specific Plan wells and existing wells to the north or south, including the RMGC well. The RMGC well, located above the syncline axis from the Primary and Backup Well locations, extracts groundwater from an overall deeper stratigraphic section than the proposed Specific Plan wells would, even though they may be of equal vertical depth. Therefore, potential well interference impacts on existing wells in the vicinity, including the RMGC well, would be *adverse, but less than significant* (Class III).

Mitigation and Residual Impact

As the Neighborhoods Specific Project wells would be feasibly constructed and operated, and would not result in significant impacts to existing well users, the residual impact related to water resources would be *adverse, but less than significant* (Class III).

3.13.4 Cumulative Impacts

1997 Impact Analysis

Additional water demand would occur with population growth associated with buildout of the Orcutt Community Plan. The potential increase in groundwater pumpage above current levels due to the Orcutt Community Plan would represent a *potentially significant* impact as it would constitute a substantial contribution to ongoing overdraft of the Santa Maria Groundwater basin. As discussed in Section 3.13.3, impacts would be *significant* if a firm commitment is not made to purchase out-of-basin permanent supplemental supplies to offset new demand.

2018 Impact Analysis

As discussed in Section 3.13.3, projected water demand for the Neighborhoods Specific Plan would be met by long-term supplemental water supplies. Therefore, cumulative impacts to water resources associated with buildout of the Neighborhoods Specific Plan would be *adverse, but less than significant* (Class III).

References

Kear, Jordan, P.G., C.Hg. and Timothy Becker, PG. 2018. *Water Well Feasibility for Orcutt Community Plan Key Site 21, Portion B, Memorandum to Anthony Wells*. Kear and Becker. February 2.

3.14 GREENHOUSE GAS EMISSIONS

This section evaluates short-term (construction) and long-term (operational) impacts to greenhouse gas (GHG) emissions that would potentially occur as a result of implementation of the proposed 2017 Neighborhoods Specific Plan (Project). Impacts are evaluated for their significance based on the Santa Barbara County Planning and Development and Santa Barbara County Air Pollution Control District's (SBCAPCD's) guidance. Technical information related to the analysis below is contained in Appendix B.

3.14.1 Previous CEQA Review

Orcutt Community Plan

The Orcutt Community Plan (OCP) EIR did not address plan buildout, including Key Site 21 (Neighborhoods Specific Plan area) relative to GHG emissions, as this environmental issue had not been identified as one for analysis until 2009.

While the OCP does not address GHG emissions directly, the following air quality and transportation Policies and Development Standards serve to reduce GHG emissions. Policy AQ-O-1, Prog. AQ-O-1.1, Prog. AQ-O-1.2, and Action AQ-O-1.3 encourage land use planning and development design that reduce air pollution through development of transportation infrastructure supportive of alternative modes of transportation and pedestrian oriented developments. Policy AQ-O-3 promotes the use of alternative fuels, solar energy systems, and use of construction techniques designed to conserve energy and minimize pollution. Policy CIRC-O-1 and Action CIRC-O-1.1 encourage the implementation of long-term improvements to roadways and alternative transportation facilities, such as transit and alternative modes of transportation (e.g., bikeways and pedestrian paths). Policy CIRC-O-6, Action CIRC-0-6.1, and Action CIRC-O-6.2 encourage development of all feasible forms of alternative transportation, including transit services and park-and-ride facilities. Policy CIRC-O-7 encourages Caltrans to accommodate planned bicycle facilities in highway overpasses. Policy CIRC-O-0 requires development to be sited and designed to provide maximum access to non-motor vehicle forms of transportation where feasible.

3.14.2 Relevant Changes

Project Description Changes

The location of the Neighborhoods Specific Plan lots are consistent with the development of the OCP. The proposed 2017 Neighborhoods Specific Plan includes the following changes from the previously approved development plan for Key Site 21 in the OCP EIR relevant to the assessment of GHG emissions impacts:

- The proposed Neighborhoods Specific Plan includes 146 single-family homes, four fewer than the OCP Key Site 21 buildout.
- Grading for the tracts, including roadways and building pads, is estimated to be approximately 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The

grading is designated to result in a balance of cut and fill between the two neighborhoods. No grading would be imported and/or exported.

- The Neighborhoods Specific Plan would include three new roadways off of SR 1 to access the project site instead of from SR 1 and the existing golf course access road identified for the OCP Key Site 21 buildout.
- The proposed Neighborhoods Specific Plan includes 97 acres of undisturbed open space, 72 acres more than conceptually protected in the OCP Key Site 21 buildout.

Project Sustainable Design Features

The proposed Neighborhoods Specific Plan incorporates various design features that would reduce GHG emissions associated with operation of the Project. These include: 1) providing homes with appropriate wiring for future access to solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent, and 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

Regulatory Setting Changes

Appendix B discusses the key federal, state, and local regulatory efforts related to GHG emissions that could apply to development under the proposed Project and the users of such development. The 1997 OCP EIR did not address regulations relative to GHG emissions, as this environmental issue had not been identified as one for analysis until 2009.

Existing Setting

The Greenhouse Effect

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

Appendix B discusses the environmental setting of the proposed Project in more detail, including GHGs, global warming potential, and climate change conditions and inventories.

3.14.3 Impacts

The 1997 OCP EIR did not analyze GHG emissions impacts, as this environmental issue had not been identified as one for analysis until 2009. Analysis pertaining to the current proposed Project is outlined below. The Project's GHG emissions are assessed by evaluating the Project's consistency

with the County's ECAP, as well as the Project's potential to exceed a County-specific efficiency metric threshold (i.e., service population threshold) for 2024. Appendix B discusses the GHG impacts of the proposed Project in more technical detail, as well as thresholds of significance and methodology for the GHG emissions analysis.

Impact GHG-1: ***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

This impact discussion analyzes the Project's consistency with the County-specific efficiency metric threshold. As shown in Table 4 of the GHG Technical Report (see Appendix B), the calculated efficiency metric for 2024 based on the CARB Scoping Plan projected emissions trajectory is 3.96 MT/SP/yr. This 2024 efficiency metric reflects trajectory planned in the State's Scoping Plan. If the Project achieves the 2024 efficiency metric, it would not interfere with the attainment of the 2030 and 2050 statewide emissions reduction targets, and therefore not interfere with the State's and the County's ability to achieve the mid-term and long-term GHG reduction targets in the ECAP.

Construction

The Project would result in GHG emissions during construction, primarily associated with use of off-road construction equipment, on-road vendor trucks, haul trucks, and worker vehicles. GHG emissions from on-site and off-site sources were quantified using the California Emissions Estimator Model (CalEEMod). As shown in Table 7 of the GHG Technical Report (see Appendix B), the estimated total GHG emissions for the Project would be approximately 633 MT CO_2E in 2019, 1,312 MT CO_2E in 2020, 1,694 MT CO_2E in 2021, 1,652 MT CO_2E in 2022, 852 MT CO_2E in 2023, for a total of 6,136 MT CO_2E. The project's total GHG emissions amortized over 25[1] years would be 245 MT CO_2E. Because there is no construction-only GHG significance threshold, the amortized construction emissions will be added to the operational emissions and their significance will be evaluated against the operational thresholds.

Operation

Operation of the Project would result in GHG emissions from vehicular traffic, area sources (e.g., natural gas combustion and landscaping), electrical generation, water supply, and solid waste. As shown in Table 8 of the GHG Technical Report (see Appendix B), estimated annual Project-generated operational GHG emissions in 2024 would be approximately 1,665 MT CO_2E per year. Estimated annual Project-generated emissions in 2024 from area, energy sources, mobile, solid waste, and water/wastewater sources, as well as amortized project construction emissions, would be approximately 1,911 MT CO_2E per year.

As discussed above, the quantitative significance threshold for the Project is to perform a quantitative analysis using the County-specific efficiency metric threshold of 3.96 MT/SP/year. The Project is anticipated to have a service population of 491 residents. Dividing the Project's estimated operational emissions of 1,911 MT CO_2E per year by the service population of 491, the Project's GHG efficiency

[1]Neither the SBCAPCD nor the County have provided guidance on what the amortization period for individual projects should be. The South Coast Air Quality Management District and City of San Diego recommend a period of 30 years. In contrast, the San Luis Obispo County Air Pollution Control District recommends a 50-year period for residential projects and a 25-year period for non-residential or commercial projects. To provide a conservative estimate of emissions, the San Luis Obispo County Air Pollution Control District 25 year amortization period is utilized in this analysis.

metric is calculated to be 3.89 MT/SP/year. Therefore, the Project's GHG efficiency metric would not exceed the significance threshold of 3.96 MT/SP/year, and impacts would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts would be less than significant, no mitigation measures are required. The residual Project impact on GHG emissions would be *adverse, but less than significant* (Class III).

Impact GHG-2: *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

This impact discussion analyzes the Project's consistency with the County's ECAP, SBCAG's RTP, and CARB's Scoping Plan.

Santa Barbara County ECAP

The ECAP EIR contains a programmatic analysis of GHG emissions for unincorporated Santa Barbara County; a project may tier from the ECAP EIR for its impact analysis of GHG emissions if a project's emissions are considered in the ECAP and the project does not exceed the growth projections assumed in the ECAP. The proposed Project does not require a general plan amendment, change in land use designation, or zoning change. Therefore, the activities associated with the proposed Project are included in the ECAP's GHG emissions forecast due to the fact that the ECAP's emission inventory is in part, based on the existing land use and zoning at the time of its approval. The ECAP contains 53 County- and community-wide programmatic emission reduction measures intended to achieve the 15 percent GHG emissions reduction target by 2020. The County created the Energy and Sustainability Initiatives Division and is taking other steps to implement and monitor the effectiveness of these measures throughout the unincorporated county. For example, the emPower Program assists homeowners countywide overcome obstacles to making energy savings improvements to their homes. Because of measures like these, the ECAP does not require the proposed Project to incorporate Project-specific emission reduction measures or mitigation measures to reduce GHG emissions. As such, the Project would not conflict with or obstruct implementation of the ECAP, and therefore impacts associated with consistency with the County's ECAP would be *adverse, but less than significant* (Class III).

SBCAG 2010-2040 RTP

The Project would include site design elements developed to support the policy objectives of the RTP and SB 375 where applicable. For example, the Project includes 123 acres of open space, including a trail and greenbelt system that connects the residential units to the regional trail system. In addition, the Project would provide traffic calming measures along all new roads. Table 9 of the GHG Technical Report (see Appendix B) shows the Project's consistency with all applicable SBCAG RTP goals and policy objectives. Therefore, impacts regarding consistency with SBCAG's RTP would be *adverse, but less than significant* (Class III).

CARB Scoping Plan

The Initial Scoping Plan was approved by CARB on December 12, 2008 (the Second Update was approved on December 14, 2017), and provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Moreover, the Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009a). However, there are several state regulatory measures aimed at the identification and reduction of GHG emissions, and the Project would comply with all applicable regulations adopted in furtherance of the Scoping Plan to the extent required by law. The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. To the extent that these regulations are applicable to the Project, its inhabitants, or uses, the Project would comply with all applicable regulations adopted in furtherance of the Scoping Plan. Based on the analysis in Table 10 of the GHG Technical Report (see Appendix B), the Project would be consistent with the applicable strategies and measures in CARB's Scoping Plan, and impacts regarding consistency with CARB's Scoping Plan would be *adverse, but less than significant* (Class III).

Mitigation Measures and Residual Impact

As impacts would be less than significant, no mitigation measures are required. The residual Project impact on GHG emissions would be *adverse, but less than significant* (Class III).

3.14.4 Cumulative Impacts

Analysis of GHG emissions is cumulative in nature because impacts are caused by cumulative global emissions. Additionally, climate change impacts related to GHG emissions do not necessarily occur in the same area as a particular proposed Project is located. Therefore, the preceding analysis is related to cumulative impacts of GHG emissions, and in this analysis the Project's impacts regarding GHG emissions would be *adverse, but less than significant* (Class III).

Appendix G

Paleontological Resource Assessment

THE NEIGHBORHOODS SPECIFIC PLAN PALEONTOLOGICAL RESOURCE ASSESSMENT

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TABLE OF CONTENTS

1.0 INTRODUCTION

2.0 PROJECT DESCRIPTION

3.0 METHODOLOGY

4.0 SIGNIFICANCE CRITERIA

5.0 PALEONTOLOGICAL RESOURCE ASSESSMENT

6.0 RECOMMENDED BEST MANAGEMENT PRACTICES

7.0 REFERENCES

1.0 Introduction

This assessment identifies the potential for significant paleontological resources to be encountered during ground disturbances associated with The Neighborhoods Specific Plan, formerly known as Orcutt Community Plan Key Site 21. Paleontological resources are the evidence of once-living organisms as preserved in the rock record. They include both the fossilized remains of ancient plants and animals and the traces thereof (e.g., trackways, imprints, burrows, etc.). In general, fossils are preserved in sedimentary rocks. Under CEQA, paleontological resources are considered objects and sites of the scientific annals of California. Public agencies are required to identify the significance of the impacts of proposed projects on these resources in compliance with 14 CCR Section 15064.5 (3). CEQA Guidelines Appendix G, Environmental Checklist, addresses paleontological resources specifically:

> "*Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature*?"

2.0 Project Description

The Neighborhoods Specific Plan would divide 176.73 acres into two tract maps (the Willow Creek Neighborhood and the Hidden Canyon Neighborhood) to create 146 single family residential lots and two (2) lots managed by the Homeowners Association (HOA), and open space lot and private roads) (see Figure 1). The lots would range in size from 8,000 square feet (a single-family lot in Willow Creek) to 49,098.95 sf (a Hidden Canyon open space/road lot). Grading for the tracts including roadways and building pads for the proposed homes is estimated to be approximately 1,007,916 cubic yards (c.y.): 532,626 c.y. cut, and 475,290 c.y. of fill. The grading was designed to result in a balance of cut and fill between the two neighborhoods. No grading fill would be placed within the undeveloped natural open space areas. Cuts in the Willow Creek Neighborhood would extend up to approximately 15 feet below existing grade (within Lot 29 and adjacent Road "D"); cuts in the Hidden Canyon Neighborhood would extend up to 20 feet below existing grade (within Lot 41). Excavation for the proposed sewer line expansion north of State Route 1 (in the Orcutt Community Plan Key Site 22 area) would extend more than 5 feet deep.

3.0 Methodology

The Society of Vertebrate Paleontology's (SVP) Standard Procedures for the Assessment and Mitigation of Adverse Impact to Paleontological Resources (2010) outline criteria used to assess the potential for a geologic unit to contain paleontological resources and to determine the likelihood (sensitivity) that the geologic unit and its contained paleontological resources would be impacted by a project. Unlike archaeological resources that are defined by their areal/geographic extent, paleontological resources indicate that the entire rock unit they are collected from is fossiliferous and the potential for additional discoveries includes the entirety of the formation. Geologic units are typically assigned to one of four levels of potential for contain paleontological resources:

- **High:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional paleontological resources. These units are typically sedimentary formations and rare volcaniclastic units (e.g., ash) with the potential for yielding abundant or significant vertebrate fossils and an associated contextual date (e.g., dateable material).

- **Undetermined:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low:** Rock units which are poorly represented by fossil specimens in institutional collections, or based on scientific consensus only presser fossils in rare circumstances (e.g., basalt flows or Recent colluvium).
- **No Potential:** Some rocks have no potential to contain significant paleontological resources, for instance high-grade metamorphic rock (e.g., gneiss and schist) and plutonic igneous rocks (e.g., granites).

A site-specific geological investigation was performed in support of the proposed Specific Plan by Bradley Bucher, PE, and Jeffrey Pfost, CEG, that included a literature review of geotechnical and geologic data, a field study including ten (10), 6-inch diameter exploratory borings (four throughout the Willow Creek Neighborhood, and six within the Hidden Valley Neighborhood) to a 25-foot depth. These were used to characterize sub-surface Project site conditions, provide the basis for site preparation and grading recommendations, and geotechnical design criteria for foundations (GeoSolutions Inc., 2016). Their findings are incorporated by reference below.

Based on the geologic units identified by GeoSolutions, Wood Staff Paleontologist Matt Sauter, M.S. (resume attached) conducted a record search at the University of California Museum of Paleontology, identifying known paleontological localities in Santa Barbara County from geologic units that are similar in age and mode deposition to the Neighborhoods Specific Plan Project site (i.e., Quaternary-aged dune sand and alluvial deposits). These records were then used to assign paleontological resource potentials to the geologic units expected to be encountered during proposed Project earth movement.

Geologic Setting and Paleontological Resources

The geologic setting is key to understanding potentially important paleontological resources in the area of interest. The Neighborhoods Specific Plan lies along the lower slopes and base of the east-west trending Casmalia Hills. The topography consists of gentle slopes that reach 420 feet in elevation along the southern perimeter of the site and drops to 220 feet elevation at the northwest corner of the property. Soils on the southerly, steeper slopes are sandy silts at the surface and silty sands below. The flatter soils in the northern portion of the site closer to State Highway 1 are surficial sandy silt and silty sands below.

Regional and local surficial geologic mapping in the Project vicinity has been summarized by GeoSolutions, Inc. (2018) based on geological mapping by Dibblee and Ehrenbeck (1989 and 1994), that include the following surficial geological rock units within the Project site (see Figure 2):

- **Qa – Quaternary Alluvium.** Valley and floodplain alluvial deposits north of State Route 1 within which the proposed sewer line expansion would be constructed.
- **Qo – Orcutt Sand.** Tan to rusty brown, poorly consolidated to locally indurated, wind-deposited sand with a pebble gravel at base locally. This unit typically occurs in the upper hillsides of the southern portion of the project site.
- **Qos – Quaternary Older Alluvium.** Dune sand deposits, weakly consolidated in places. This unit typically occurs in the lower flats of the norther portion of the project site.

The following is an inventory and assessment of paleontological resources from rock units deposited during the Quaternary[1] era within Santa Barbara County. In general, to be considered a fossil, a specimen must be older than recent. Because the alluvial soil deposits within the Project site date to the recent Holocene era (less than 11,700 years ago), these sediments are unlikely to contain significant paleontological resources and are considered to have no paleontological sensitivity. These Holocene-aged surficial units, Qa-Quaternary Alluvium, are likely underlain by older Pleistocene-aged units, such as Qo-Orcutt Sand and Qos-Quarternary Older Alluvium, which have produced significant vertebrate fossils elsewhere in Santa Barbara County (UCMP Fossil Locality Database, 2018). Geologic units deposited prior to the Quaternary in Santa Barbara County were not assessed for paleontological sensitivity under this assessment, as they are unlikely to be encountered during Project implementation.

Table-1. Rock Unit Description and Paleontological Resource Sensitivity

Geological Map Unit Symbol	Name/Description of Unit	Age	Paleontological Resource Sensitivity
Qa	Valley and floodplain alluvial deposits	Quaternary	Low
Qo	Orcutt Sand	Quaternary	Low
Qos	Older alluvial dune sand deposits	Quaternary	Low

A University of California Museum of Paleontology (UCMP) online locality database search for Quaternary-aged paleontological localities in Santa Barbara County recorded a total of 197 localities, six of which were sites where vertebrate fossils have been collected. Details of the localities are provided below:

- 1078 – Conception Station: This locality was collected from unnamed Pleistocene-aged deposits near Conception Station The four-specimen collection from this locality includes a metapodial (foot bone) of the extinct North American camel, *Camelops* sp., a vertebra from a giant ground sloth (*Megatherium* sp.), and a fibula (lower leg bone) and ulna (lower arm bone) of an unidentified Xenarthran, the group that includes anteaters, sloths, and armadillos.
- V65187 – San Miguel Island: This site was collected from unnamed Pleistocene-aged deposits from San Miguel Island and includes tooth and tusk material of *Mammuthus* sp. (mammoth).
- V6599 - Santa Maria: This locality was collected from unnamed Pleistocene-aged deposits in the vicinity of Santa Maria. The single specimen from this locality is a single, upper third molar from a tapir (*Tapir californicus*) that was endemic to the west coast of prehistoric California and differentiated from inland members of the genus.
- 3213 - Carpinteria: This locality was collected from the Pleistocene-aged Carpinteria Formation from the vicinity of Carpinteria. The collection from this locality includes material from a wide variety of birds:

[1] Current and most recent geologic period as defined by the International Commission on Stratigraphy including the Pleistocene (2.59 million years ago to 11,700 years ago) and Holocene (11,700 years ago to present) epochs.

- *Pipilo fuscus* (Canyon Towhee)
- *Sitta pygmaea* (Pygmy Nuthatch)
- *Sialia mexicana* (Western Bluebird)
- *Chamaea fasciata* (Wrentit)
- *Aphelocoma californica* (California Scrub Jay)
- *Loxia curvirostra* (Red Crossbill)
- *Sturnella neglecta* (Western meadowlark)
- *Corvus caurinus* (Northwestern Crow)
- *Regulus* sp. (Kinglet)

- V5009 - Garanon Canyon: This locality was collected from the Pleistocene-aged Santa Rosa Island Formation from Garanon Canyon on Santa Rosa Island. The material collected from this locality includes tooth fragments from *Mammuthus exilis* (pygmy mammoth).
- V7108 - Point Sal: This locality was collected from an unnamed Pleistocene-aged sandstone unit in the vicinity of Point Sal. The five-specimen collection from this site includes a vertebral epiphysis and partial skull of an unidentified whale, a dentary (lower jaw) fragment with second molar of an unidentified camel, a dentary fragment with third molar of *Bison* sp., and tooth fragments of an unidentified Proboscidean.

4.0 Significance Criteria

The thresholds of significance under CEQA are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. The Proposed Action would result in a significant impact related to paleontological resources if it would:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

CEQA defines a substantial adverse change as: (1) physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a paleontological resource would be materially impaired; or (2) demolition or material alteration of the physical characteristics that convey the resource's significance (14 CCR § 15064.5(b)).

5.0 Paleontological Resource Assessment

Proposed Project ground disturbing activities would occur as depicted in the site and grading plans. Ground disturbing activities would occur within Quaternary-aged older dune sands (Qos) and the Orcutt Sand (Qo). These geological units have a low potential to contain significant paleontological resources. While they have low potential, geologic units of similar age and geographic proximity have produced fossil material including that of an extinct tapir (*Tapirus californicus*) found in or around the City of Santa Maria. While rare, such resources may be present within the Project area and should be protected or collected and deposited with an appropriate institution in uncovered during Project construction.

6.0 Recommended Best Management Practices

The proposed Project is unlikely to encounter paleontological resources based on the assessment above, and therefore would have a less than significant impact on these resources. Implementation of the following Best Management Practice would ensure that any unlikely discoveries of paleontological resources during ground disturbing activities would be feasibly mitigated to a less than significant level.

1. Worker Paleontological Resource Awareness Session

Purpose: In order to educate project workers regarding the protection of any paleontological resources that are discovered during project development.

Requirements: The Permittee, or consultant selected by the Permittee, shall develop a worker awareness program to educate all workers regarding the paleontological resources that have the potential to occur on the development site as well as appropriate procedures to enact should paleontological resources be discovered during development.

Documentation: The Permittee, or consultant selected by the Permittee, will develop appropriate training materials including a summary of geologic units present at the development site, potential paleontological resources that may be encountered during development, and worker attendance sheets to record workers' completions of the awareness session.

Timing: The worker awareness session for paleontological resources will occur prior to project development, and as new employees are added to the project site workforce.

Monitoring and Reporting: The Permittee shall provide awareness session sign-in sheets documenting employee attendance to the County as requested.

2. Paleontological Resources Inadvertently Discovered During Grading

Purpose: In order to prevent potential significant impacts on paleontological resources that may be encountered during ground disturbance or construction activities.

Requirements: In the event that any potentially significant paleontological resources are uncovered during ground disturbance or construction activities:

a. Temporarily cease grading in the vicinity of the finds and redirect activity elsewhere to ensure the preservation of the resource in which the discovery was made;

b. Immediately notify the Santa Barbara County Planning and Development and Public Works Departments regarding the resource and redirected grading activity;

c. Obtain the services of a professional paleontologist who shall assess the significance of the find and provide recommendations as necessary for its proper disposition for review and approval by Santa Barbara County Planning and Development.

d. Complete all significance assessment and mitigation of impacts to the paleontological resource and verification reviewed and approved by Santa Barbara County Planning and Development prior to resuming grading in the area of the find.

Documentation: Submit a report prepared by the qualified paleontologist. Additional documentation may be required to demonstrate that all recommendations have been demonstrated in a paleontological report.

Timing: The County shall be notified immediately after the unanticipated discovery of a paleontological resource. Paleontological reports shall be reviewed and approved prior to issuance of occupancy.

Monitoring and Reporting: Paleontological reports prepared for the project site in response to an unanticipated discovery shall be maintained by the Santa Barbara County Planning and Development.

7.0 References

Dibblee, T.W. and Ehrenspeck, H.E., 1989. *Geologic Map of the Casmalia and Orcutt Quadrangles, Santa Barbara County, California*. Dibblee Geological Foundation, Dibblee Foundation Map DF-24, scale 1:24,000. Incorporated by reference from GeoSolutions, Inc. (2016)

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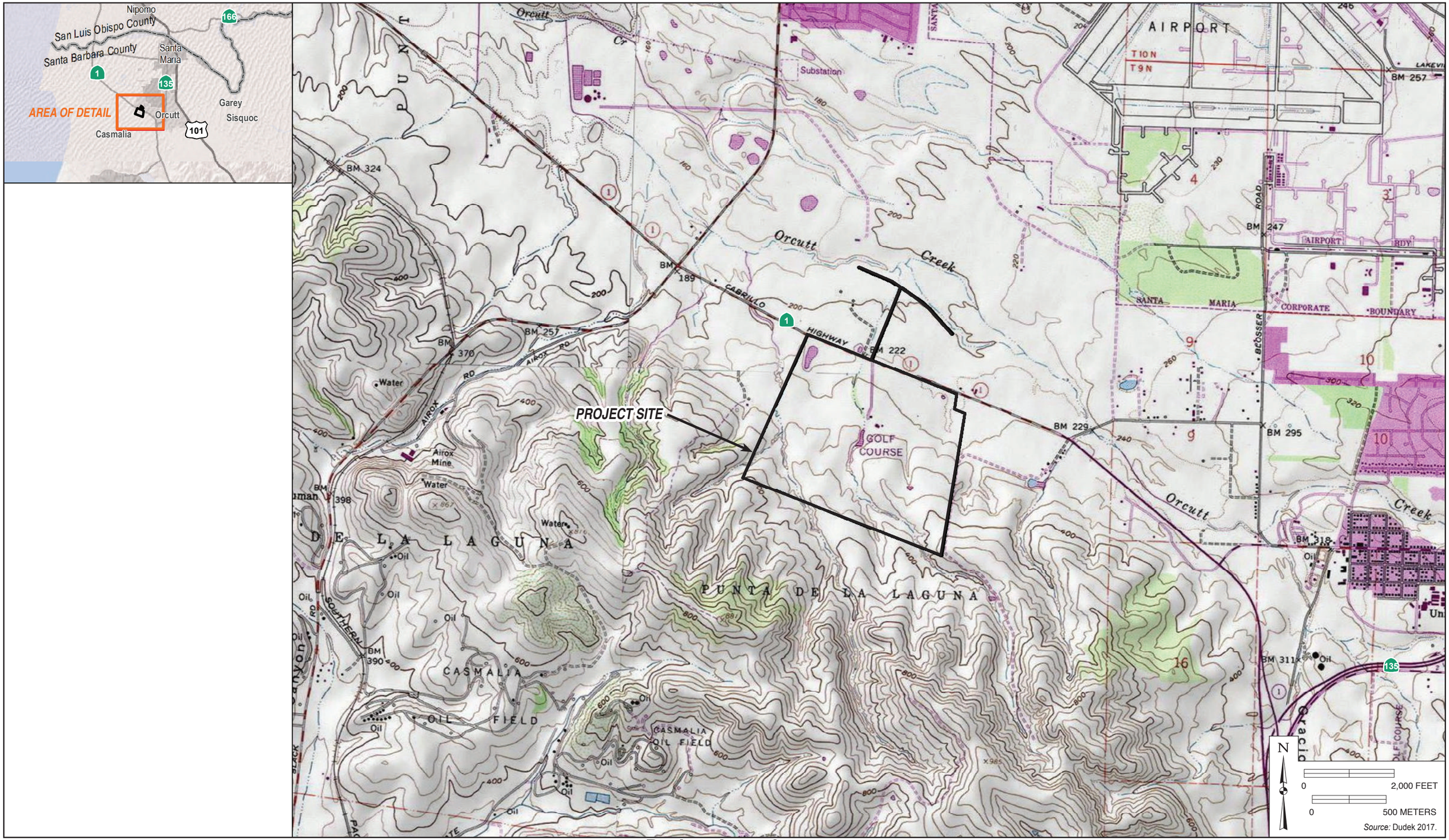
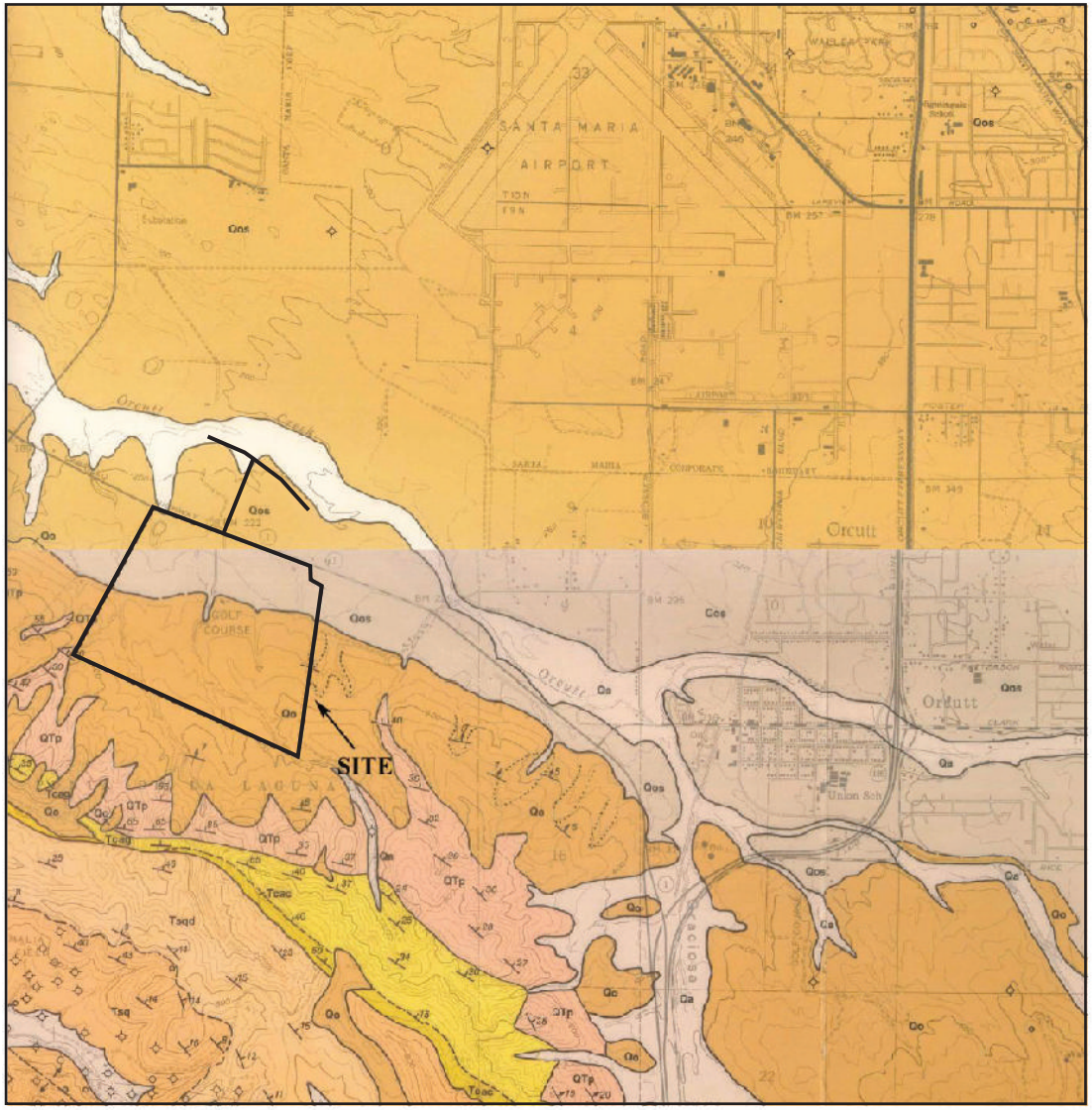
University of California Museum of Paleontology Locality Records Database. Accessed July 16, 2018. Search parameter State: California, County, San Luis Obispo. https://ucmpdb.berkeley.edu/loc/html



wood.

Project Location
The Neighborhoods Specific Plan
Paleontological Resources Assessment

FIGURE 1



LEGEND

Qs / Qds / Qg / Qa

SURFICIAL SEDIMENTS

Qs *Beach sand deposits*
Qds *Dune sand deposits*
Qa *Valley and floodplain alluvial deposits*
Qg *Valley and floodplain deposits of silt, sand and gravel*

Qls

LANDSLIDE DEBRIS

Qls *Landslide debris*

Qos / Qoa / Qo

OLDER DISSECTED SURFICIAL SEDIMENTS

Qos *Dune sand deposits, in places weakly consolidated*
Qoa *Remnants of weakly consolidated stream terrace and alluvial fan deposits of silt, sand and gravel*
Qo *Orcutt Sand: tan to rusty brown, poorly consolidated to locally indurated, wind-deposited sand; pebble gravel at base locally*

QTp

PASO ROBLES FORMATION
Nonmarine; late Pliocene to early Pleistocene age

QTp *Weakly consolidated, light greenish-gray to reddish alluvial sediments; conglomerate composed largely of Monterey Shale pebbles*

Tca / Tcag / Tcac

CAREAGA SAND
Marine regressive; early Pleistocene age

Tca *Undivided; weakly indurated, massive, grayish-yellow, locally pebbly sand*
Tcag *Graciosa Member: thick bedded, grayish-yellow, locally pebbly, weakly indurated sand; fossiliferous calcareous reef at base*
Tcac *Cebada Member: massive tan-yellow, weakly indurated, fine-grained sand; locally includes* **Tcat**, *basal tar-soaked sand*

Tf

FOXEN MUDSTONE
Marine; middle to late Pliocene age

Tf *Light gray massive claystone and siltstone*

Tsqd / Tsqo / Tsq

SISQUOC FORMATION
Marine; late Miocene age

Tsqd *White to cream-white, punky, diatomaceous claystone and clayey diatomite*
Tsqo *Same as Tsqd, but oil-saturated and partly burned locally to frothy stone*
Tsq *(Todos Santos Claystone Member of Woodring and Bramlette, 1950): light gray claystone and slightly diatomaceous or siliceous clay shale*

Source: Geosciences 2017.

wood.

Geologic Map
The Neighborhoods Specific Plan
Paleontological Resources Assessment

FIGURE 2

Appendix H

Greenhouse Gas Emissions Technical Report

Greenhouse Gas Emissions Technical Report
for
The Neighborhoods of Willow Creek & Hidden Canyon

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TABLE OF CONTENTS

Section **Page No.**

ACRONYMS AND ABBREVIATIONS ..... **VI**

EXECUTIVE SUMMARY ..... **VII**

1 INTRODUCTION **1**
- 1.1 Report Purpose and Scope 1
- 1.2 Regional and Local Setting 1
  - 1.2.1 Regional Location 1
  - 1.2.2 Project Setting 1
- 1.3 Proposed Project Description 1

2 ENVIRONMENTAL SETTING **8**
- 2.1 The Greenhouse Effect 8
- 2.2 Greenhouse Gases 9
- 2.3 Global Warming Potential 11

3 REGULATORY SETTING **12**
- 3.1 Federal Regulations 12
- 3.2 State Regulations 14
- 3.3 Local Regulations 27

4 CLIMATE CHANGE CONDITIONS AND INVENTORIES **30**
- 4.1 Contributions to Greenhouse Gas Emissions 30
- 4.2 Potential Effects of Climate Change 31

5 SIGNIFICANCE CRITERIA AND METHODOLOGY **36**
- 5.1 Significance Criteria 36
- 5.3 Approach and Methodology 39
- 5.3.1 Construction 39
- 5.3.2 Operation 41

6 IMPACT ANALYSIS **44**
- 6.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. 44
- 6.2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. 46

7 REFERENCES CITED **57**

8 LIST OF PREPARERS **62**

APPENDIX

A Detailed Calculation Tables

FIGURES

Figure 1 Vicinity and Regional Map 5
Figure 2 Site Plan 6

TABLES

1 GHG Emissions Sources in California 30
2 Summary of GHG Emissions for the County by Sector 31
3 2024 Interpolated Population and Employment 38
4 2024 Calculated Efficiency Metric 38
5 Construction Phasing Assumptions 40
7 Estimated Annual Construction GHG Emissions 44
8 Estimated Annual Operational Greenhouse Gas Emissions 45
9 County of Santa Barbara ECAP Consistency Analysis 47
10 2010-2040 RTP/SCS Consistency Analysis 49
11 Project Consistency with Scoping Plan GHG Emission Reduction Strategies 51

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
BAU	business-as-usual
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CNRA	California Natural Resources Agency
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	Santa Barbara County
CPUC	California Public Utilities Commission
ECAP	Energy and Climate Action Plan
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
H_2O	water
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
MT	metric ton
MMT	million metric ton
N_2O	nitrous oxide
O_3	ozone
PFC	perfluorocarbon
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SBCAG	Santa Barbara County Association of Governments
SBCAPCD	Santa Barbara County Air Pollution Control District
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride

EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Neighborhoods Specific Plan (proposed project). Impacts were evaluated for their significance based on consistency with the County of Santa Barbara's (County) Energy and Climate Action Plan, the Santa Barbara County Association of Governments Regional Transportation Plan, and the California Air Resources Board 2030 Scoping Plan.

Project Overview

The proposed project consists of two Vesting Tentative Maps and a Specific Plan to allow for development of 146 single-family dwelling units to address the residential component of Key Site 21. The total project area is approximately 189 acres. The new land uses proposed for the Neighborhood Specific Plan includes housing divided into two separate single-family residential neighborhoods: Hidden Canyon and Willow Creek a two-mile trail system, and 123 acres of open space. The 123-acres of open space will consist of 29.8 acres of managed open space and 97 acres of undisturbed open space.

Impact Analysis Summary

Global climate change is primarily considered a cumulative impact, but must also be evaluated at the project level under the California Environmental Quality Act (CEQA). A project potentially may contribute to global climate change through its incremental contribution of GHG emissions, when combined with the cumulative increase of all other sources of GHG emissions. The principal GHGs regulated under state law for purposes of land use development include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which accounts for weighted global warming potential factors for CH_4 and N_2O.

Project-Generated Construction and Operational Greenhouse Gas Emissions

Estimated annual project-generated construction and operational GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. CalEEMod provides a platform to calculate both construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the State of California, including the Santa Barbara County Air Pollution Control District (SBCAPCD). Numerous lead agencies in the State, including the County of Santa Barbara, use CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines, Section 15064.4(a)(1).

Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total project-generated GHG emissions during construction were estimated to be 6,095 MT CO_2e, or 203 MT CO_2e per year when amortized over 30 years.

The proposed project would generate operational GHG emissions from area sources (hearths and landscape maintenance), energy sources (electricity and natural gas consumption), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. Estimated annual project-generated operational GHG emissions at build-out in 2024 would be approximately 1,465 MT CO_2e per year. Estimated annual project-generated operational emissions in 2024, plus amortized project construction emissions, would be approximately 1,668 MT CO_2e per year.

Potential to Generate Significant GHG Emissions

County of Santa Barbara Energy and Climate Action Plan

The County adopted the Energy and Climate Action Plan (ECAP) in May 2015, which is a qualified GHG emissions reduction plan under the CEQA Guidelines through 2020, from which future development within the unincorporated portion of the County can tier from and thereby, streamline the environmental analysis necessary under CEQA (see 14 CCR 15183.5). However, the proposed project would require a general plan amendment and/or a zoning change of the project site. Therefore, the proposed project was not accounted for in development of the ECAP. The ECAP includes 53 County- and community-wide programmatic emission reduction measures intended to achieve the 15 percent GHG emissions reduction target by 2020. While the ECAP reduction measures were not intended to expressly define "consistency" of a specific project with the ECAP, the measures help identify if a given project would not conflict with the ECAP. The proposed project was shown to directly support several GHG reducing measures in the ECAP.

County-Specific Efficiency Metric Threshold

This analysis developed a County-specific efficiency metric GHG emissions threshold to determine significance, which is expressed as MT CO_2e per service population per year (MT CO_2e/SP/year). A project's "service population" refers to a project's residents plus employees that would be generated by the project. Because there are no GHG emissions, employment, or population data specific to the proposed project's build-out year of 2024, an efficiency metric threshold was generated for year 2024 by interpolating the efficiency metrics for years 2020 and 2035.

To develop the 2020 efficiency metric, citywide GHG emissions from the ECAP were used for year 2020. The service population for 2020 was estimated using Santa Barbara County Association of Governments (SBCAG) 2010-2040 Regional Growth Forecast for residential population and employment in 2020.

To develop the efficiency metric for 2035, the County's forecasted emissions in 2020, as provided in the ECAP, were reduced by 5.2% per year through 2035, in accordance with the California Air Resources Board's linear trajectory of the statewide reductions needed to occur between 2020 and 2050 in order for the state to achieve its 2050 reduction target (CARB 2015b). The SBCAG 2010-2040 Regional Growth Forecast was then used for year 2035 population and employment data for the County.

To estimate the residents for the proposed project, the persons per household ratio for 2020 and 2035 from the SBCAG were used to interpolate the persons per household ratio for 2024. The expected number of residents for the proposed project is 431. The calculated 2024 efficiency metric threshold was 3.96 MT CO_2e/SP/year. The proposed project is estimated to result in an efficiency metric of 3.87 MT CO_2e/SP/year. The proposed project would not exceed this significance threshold thus would be considered to support the State's 2050 GHG reduction goal. The proposed project would have a less than significant impact.

Consistency with Applicable Greenhouse Gas Reduction Plans

<u>County of Santa Barbara Energy and Climate Action Plan</u>

As discussed above, the proposed project was shown to be consistent with applicable GHG reduction measures; therefore, the proposed project would not conflict with the ECAP.

<u>SBCAG's 2040 Santa Barbara County Regional Transpiration Plan</u>

The proposed project's consistency with the SBCAG Regional Transportation Plan (RTP) (SBCAG 2017) was evaluated to determine whether the project would support and or be consistent with the objectives and policies. The proposed project would support the goals of the SBCAG RTP by providing traffic calming measures, a pedestrian pathway system within each neighborhood, and adjacent accessible open space to new residents. Therefore, the proposed project would be considered consistent with the RTP.

<u>California Air Resources Board Scoping Plan</u>

The consistency of the proposed project was also evaluated against the California Air Resources Board's AB 32 Scoping Plan, including the Second Update to the Scoping Plan, which was adopted

in December 2017. The goals and measures outlined in the plan were evaluated as they applied to the proposed project. The proposed project was deemed to be consistent with all applicable goals and measures. Accordingly, the proposed project would not conflict with the Scoping Plan and would result in a less than significant impact.

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Neighborhood Specific Plan (proposed project). Impacts are evaluated for their significance based on the Santa Barbara County (County) Planning and Development enumerated GHG thresholds and is based on Santa Barbara County's Energy and Climate Action Plan (ECAP)

1.2 Regional and Local Setting

1.2.1 Regional Location

The project site is located on Highway 1 approximately 2 miles west of Old Town Orcutt between the intersection of Black Road to the west and Solomon Road to the east in the northwestern portion of the Orcutt Community Plan area (and is a part of a 340-acre site known as Key Site 21). The project site is located in the Third Supervisorial District and consists of approximately 189 acres. Figure 1 shows the project location within the County of Santa Barbara. The project is located approximately 4 miles southwest of Santa Maria. Regionally, the City of Santa Maria is situated in northern Santa Barbara County, about 55 miles north of Downtown Santa Barbara via Highway 154 (CA-154).

The project is located within the South Central Coast Air Basin (SCCAB) and is within the jurisdictional boundaries of the Santa Barbara County Air Pollution Control District (SBCAPCD). The SCCAB and the SBCAPCD are discussed further in Chapter 2, Environmental Setting, and Chapter 3, Regulatory Setting, respectively.

1.2.2 Project Setting

The project site is located on Highway 1 approximately 2 miles west of Old Town Orcutt between the intersection of Black Road to the west and Solomon Road to the east in the northwestern portion of the Orcutt Community Plan area (and is a part of a 340-acre site known as Key Site 21). Figures 1 and 2 show the project location within the County of Santa Barbara. The project is located southwest of Santa Maria. Regionally, the City of Santa Maria is situated in northern Santa Barbara County, about 55 miles north of Downtown Santa Barbara via Highway 154 (CA-154).

1.3 Proposed Project Description

The proposed project consists of a General Plan Amendment to the Land Use Element, Zone Change to S-P Zone, a Vesting Tentative Map and Specific Plan to allow for development of the

146 single-family dwelling unit project. The total project area is approximately 189 acres. The land uses proposed for the Neighborhood Specific Plan Area includes open space system, a public trail, biological protection, and two single-family residential neighborhoods described as follows:

- Willow Creek will contain approximately 90 homes, approximately 11 acres of landscaped open space and approximately 38 acres of undisturbed open space. Primary vehicular access would be provided via three newly proposed private roads off State Route 1.
- Hidden Canyon will contain approximately 56 homes, approximately 11 acres of landscaped open space, a two-mile trail system and approximately 60 acres of undisturbed open space. Primary vehicular access would be provided via three newly proposed private roads off State Route 1.

Access & Circulation:

The Neighborhoods Specific Plan proposes private streets and secondary access routes for internal vehicular circulation as well as private pedestrian walkways. The Neighborhoods Specific Plan site would also include a public trail and trailhead parking. Access to each neighborhood will be provided via one proposed private road off State Route 1. The primary private access roads will be 38-feet wide, with parking allowed on both sides. The secondary private roads will be 24-feet wide, with no parking allowed. The on-site circulation is private and designed to accommodate moving vans/trucks, emergency vehicle access and trash pick-up and to provide safe access and adequate storage for motorists to and from the Neighborhood Specific Plan area. The developer shall comply with the County's off-street parking requirements.

Willow Creek (Western section): A new private access road will be constructed approximately 1,200 feet west of the main entrance to the Golf Course to serve the 90 Willow Creek neighborhood home sites. A private existing secondary access road with gated egress for residents and full access for emergency personnel only that would be secured by a Knox Box; emergency exiting will be unrestricted and automatic.

Hidden Canyon (Eastern section): One new private road will be constructed approximately 1,650 feet east of the existing Golf Course entrance that will provide primary access to the 56 Hidden Canyon neighborhood home sites. An additional secondary egress-only access will be constructed 405 feet east of the primary entrance that will link the upper portions of the Hidden Canyon neighborhood to Highway 1.

Neighborhood Specific Plan Sustainable Design Features:

The proposed Neighborhood Specific Plan incorporates various design features that would reduce GHG emissions associated with operation of the Neighborhood Specific Plan. These include: 1)

use of solar power for electrical energy use; 2) improvements in energy efficiency (achieving the California Energy Commission (CEC) Title 24 Building Energy Efficiency Standards); 3) water conservation strategies that reduce indoor and outdoor water use by 20 percent; and, 4) architectural and site design features to increase building efficiency and encourage pedestrian circulation including pedestrian network improvements and traffic calming measures.

1. Alternative Energy Source. – Solar Power. 100% of the residential units will be pre-wired for solar power.

2. Energy Efficiency Improvements. Proposed architectural planning and design would take advantage of energy efficiency, such as natural heating and/or cooling via roof overhangs and window placement, sun and wind exposure, and solar energy opportunities. Residential design would also consider sufficient setbacks and orientation to maximize solar access to all homes.

3. Water Conservation. Indoor water use would be conserved through the following measures (quantified in California Emissions Estimator Model (CalEEMod)):

- All hot water lines would be insulated.
- Water pressure would not exceed 50 pounds per square inch (psi). Water pressure greater than 50 pounds per square inch would be reduced to 50 pounds per square inch or less by means of a pressure-reducing valve.
- Recirculating, point-of-use, or on-demand water heaters would be installed.
- Low-flow plumbing fixtures would be used, including 1.6 gallons-per-flush toilets; water-efficient clothes washers and dishwashers would be installed.

Outdoor water use would be reduced by incorporating drought-tolerant trees, shrubs, and groundcovers compatible with the natural surroundings and the community's architectural theme in The Neighborhoods Landscape Concept Plan. The plant selection would encourage compatible, non-invasive, climate-suitable and drought-tolerant landscape designs, and plants would be grouped by water needs. Evapotranspiration irrigation controllers would be provided, and private irrigation systems are encouraged to be designed to apply water slowly, allowing plants to be deep soaked and reduce runoff. Water-efficient systems, such as drip or bubblers, are encouraged in all areas needing irrigation except turf irrigation and small ornamental plantings. Efficient use of water from the roof drains for landscape irrigation would also be encouraged. Water efficient systems would comply with the Governor's emergency drought declaration and recent changes to State Model Water Efficient Landscape Ordinance and California Green Building Code.

4. Architectural Site Design and Pedestrian Circulation. Traditional elements, consistent with the proposed Neighborhoods architectural styles, would be incorporated to create a pleasant pedestrian-oriented neighborhood environment. These elements include front porches, recessed front garages, or garages on the side of homes, generous street landscaping, and access to a private decomposed granite pedestrian pathway system. Streetlights would provide a safe level of illumination for pedestrians and breaks in view fencing would be provided at cul-de-sacs to facilitate pedestrian movement. Subdivisions would provide pedestrian walkways through the Neighborhood Specific Plan area that connect with the trail system.

Figure 1

Figure 2

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2 ENVIRONMENTAL SETTING

2.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (i.e., decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 4.2, Potential Effects of Climate Change.

2.2 Greenhouse Gases

GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor (H_2O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[1]

Carbon Dioxide. CO_2 is a naturally occurring gas and a byproduct of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are the combustion of coal, oil, natural gas, and wood.

Methane. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers; manure management; industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants); vehicle emissions; and the use of N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change Second Assessment Report (1995), the Intergovernmental Panel on Climate Change Fourth Assessment Report (2007), the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2015a), and the U.S. Environmental Protection Agency's Glossary of Climate Change Terms (EPA 2016).

substances in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing.

- **Hydrochlorofluorocarbons:** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HCFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances (chlorofluorocarbons (CFCs)).

- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to the ozone-depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential (GWP). Diesel particulate matter emissions are a major source of black carbon and are also toxic air contaminants that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB's) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases both from natural sources and from human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen, plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

2.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (U.S. Environmental Protection Agency (EPA) 2015).

The Intergovernmental Panel on Climate Change developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of the California Emissions Estimator Model (version 2016.3.2) assumes that the GWP for CH_4 is 25 (which means that emissions of 1 MT CH_4 are equivalent to emissions of 25 MT CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007). The GWP values identified in the California Emissions Estimator Model were applied to the proposed project.

3 REGULATORY SETTING

3.1 Federal Regulations

Massachusetts vs. EPA. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric

generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits. Additionally, in March 2017, President Trump directed the EPA Administrator to review the Clean Power Plan in order to determine whether it is consistent with current executive policies concerning GHG emissions, climate change and energy.

3.2 State Regulations

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan. In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In the *Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" (BAU)). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020

emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

More recently, in 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The *First Update* identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

Based on CARB's research efforts presented in the *First Update*, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, CARB recalculated the state's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions.

On January 20, 2017, CARB released The *2017 Climate Change Scoping Plan Update (Second Update)* for public review and comment (CARB 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to

reduce GHGs from refineries by 20%. The *Second Update* incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the *Second Update*, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016a). When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA" (CARB 2017a). The Second Update was approved by CARB's Governing Board on December 14, 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to CARB's membership, and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at

least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40 percent below 2013 levels by 2030 for methane and HFCs, and 50 percent below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Reduction Strategy*) in March 2017. The *SLCP Reduction Strategy* establishes a framework for the statewide reduction of emissions of black carbon, methane and fluorinated gases.

EO B-55-18. EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality no later than 2045, and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California Green Building Standards Code (CALGreen), and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- 65 percent of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements; stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

The California Public Utilities Commission (CPUC), CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020,

and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).[2] As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2015b).

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "GoSolarCalifornia," was previously titled "Million Solar Roofs."

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of

[2] It is expected that achievement of the ZNE goal will occur via revisions to the Title 24 standards.

incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a sustainable communities strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. In 2010 and 2017, CARB adopted SB 375 targets for the regional MPOs. The 2017-adopted targets for SBCAG are a 13.3% reduction in emissions per capita by 2020 and a 17.7% reduction by 2035.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015) as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. The

bill requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The City's population does not exceed 200,000 so this statute does not apply. Prior to this statutory deadline, in August 2016, the County of San Diego's Board of Supervisors adopted Ordinance No. 10437 adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

SB 350. In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code section 740.12).

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (2002) established the Renewable Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368. SB 1368 (2006) requires the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the State that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2015). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

Other State Regulations and Goals

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resources Agency adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines in the California Code of Regulations (CCR), a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis, or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The CEQA Guidelines require a lead agency to consider the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through implementation of project features or offsite measures. The adopted amendments do not establish a GHG emissions threshold, but allow a lead agency to develop, adopt, and apply its own thresholds of significance

or those developed by other agencies or experts. The California Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in CCR Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions, or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: the extent a project may increase or reduce GHG emissions compared to the existing environmental setting; whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (California Natural Resources Agency (CNRA) 2009), and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than two degrees Celsius by 2050. The Under 2 MOU agreement

pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than two metric tons by 2050. A total of 135 jurisdictions representing 32 countries and six continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

3.3 Local Regulations

SBCAPCD and SBCAG

The SBCAPCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the County. The SBCAPCD operates monitoring stations in the County, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SBCAPCD's focus is on criteria air pollutants to achieve California Ambient Air Quality Standards and National Ambient Air Quality Standards. It does not generally regulate sources of GHG emissions, except in its role as a reviewing agency for projects subject to CEQA.

SBCAG prepared a 2040 Regional Transportation Plan-Sustainable Communities Strategy (RTP-SCS), adopted in August 2017, which shows how the region will achieve the required GHG per capita emission targets as well the co-benefits of reducing criteria pollutants. The 2040 RTP-SCS is based on a preferred land use and transportation scenario, which lays out one possible pattern of future growth and transportation investment for the region. The 2040 RTP-SCS preferred scenario emphasizes a transit-oriented development and infill approach to land use and housing, supported by complementary transportation and transit investments. The 2040 RTP-SCS meets the requirements of SB 375 and successfully achieves the region's GHG emission targets in 2020 and 2035, while accommodating forecast growth and regional housing needs. The 2040 RTP-SCS would meet the SBCAG region's GHG emission targets from passenger vehicles for 2020 and 2035, achieving reductions in per capita emissions of CO_2 from passenger vehicles of 13.3% in 2020 and 17.7% in 2035, better than the SBCAG target of zero net growth in per capita emissions (SBCAG 2017).

County of Santa Barbara

CEQA Guidelines Section 15183.5(a) states,

> Lead agencies may analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in…a separate plan to reduce GHG emissions. Later project-specific environmental documents may tier from…that existing programmatic review…a lead agency may determine that a project's incremental contribution to a cumulative

> effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan…

The County of Santa Barbara Board of Supervisors adopted the ECAP in May 2015 and certified the accompanying EIR (PMC 2015). The ECAP meets the criteria in CEQA Guidelines Section 15183.5(b) for a "plan to reduce GHG emissions." The ECAP commits the County to reduce community-wide GHG emissions by 15 percent below 2007 levels by 2020 consistent with the California Global Warming Solutions Act of 2006 (Assembly Bill 32) and the related Climate Change Scoping Plan (CARB 2008). The ECAP is a qualified GHG emissions reduction plan for projects built prior to 2020.

The County of Santa Barbara developed a Climate Action Strategy, which is a two-phase project comprised of (1) a Climate Action Study, and (2) an Energy and Climate Action Plan (ECAP). The Climate Action Strategy covers the unincorporated areas of Santa Barbara County where the County of Santa Barbara retains land use permit authority, which includes the proposed project. The County of Santa Barbara Long-Range Planning Division completed Phase 1 of the Climate Action Strategy, the Climate Action Study, in September 2011. The Climate Action Study provides a summary of policies, programs, and projects that the County of Santa Barbara can implement to reduce GHG emissions in the unincorporated County (County of Santa Barbara 2011). Phase 2, the ECAP, which seeks to reduce the County's GHG emissions through implementation of selected emission reduction measures with the goal of achieving the selected GHG reduction target, was adopted in May 2015 County of Santa Barbara 2015).

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4 CLIMATE CHANGE CONDITIONS AND INVENTORIES

4.1 Contributions to Greenhouse Gas Emissions

Per the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016 (EPA 2018), total U.S. GHG emissions were approximately 6,511.3 MMT CO_2e in 2016. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6% of total GHG emissions (5,310.9 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.5% of CO_2 emissions in 2016 (4,996.0 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2016 are higher by 2.4%, down from a high of 15.7% above 1990 levels in 2007. GHG emissions decreased from 2015 to 2016 by 1.9% (126.8 MMT CO_2e) and overall, net emissions in 2016 were 11.1% below 2005 levels (EPA 2018).

According to California's 2000–2016 GHG emissions inventory (2018 edition), California emitted 429.40 MMT CO_2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high-GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2016 are presented in Table 1.

Table 1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percentage of Total[a]
Transportation	169.38	39%
Industrial uses[b]	89.61	21%
Electricity generation[c]	68.58	16%
Residential and commercial uses	39.36	9%
Agriculture	33.84	8%
High GWP substances	19.78	5%
Recycling and waste	8.81	2%
Totals	**429.40**	**100%**

Source: CARB 2018.
Notes: Emissions reflect the 2016 California GHG inventory.
GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential.
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] The Aliso Canyon natural gas leak event released 1.96 MMT CO_2e of unanticipated emissions in 2015 and 0.53 MMT CO_2e in 2016. These leak emissions will be fully mitigated according to legal settlement and are tracked separately from routine inventory emissions.
[c] Includes emissions associated with imported electricity, which account for 26.28 MMT CO_2e annually.

Between 2000 and 2016, per capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23% decrease. In addition, total GHG emissions in 2016 were approximately 12 MMT CO_2e less than 2015

emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2018).

County of Santa Barbara GHG Activity

As described in Section 3.3, Local Regulations, the County has established a CAP based on performance targets set by the state. Table 2 shows the baseline GHG emissions from 2007 with the BAU 2020 scenario. These emissions are then compared to the projected reduced emissions incorporating the statewide implementation measures.

Table 2
Summary of GHG Emissions for the County by Sector

Source Category	Annual GHG Emissions (MMT CO_2e)	Percentage of Total
	MT CO_2e	*MT CO_2e*
Residential	298,150	25%
Commercial	151,600	13%
Industrial	50,820	4%
Agriculture	168,870	14%
Transportation	523,430	44%
Total[b]	**1,192970**	**100%**

Source: Santa Barbara County 2013.
GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.

4.2 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2° Celsius (°C) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above

current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36° Fahrenheit (°F)) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the state's water supply, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. The agriculture sector and farmers face some specific challenges that include more drastic and unpredictable

precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated.

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private, and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Increased temperatures will also increase electricity demand associated with air conditioning. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of carbon dioxide, renewable energy, and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and

emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality, or other climate change effects on vegetation.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality.

Transportation. Residents of California rely on airports, seaports, public transportation, and an extensive roadway network to gain access to destinations, goods, and services. While the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure which can impair movement of peoples and goods, or potentially block

evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes, and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat.

In March 2016, the CNRA released Safeguarding California: Implementation Action Plans, a document that shows how California is acting to convert the recommendations contained in the 2014 Safeguarding California plan into action (CNRA 2016). Additionally, in May 2017, CNRA released the draft Safeguarding California Plan: 2017 Update, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA 2017).

The CNRA released *Safeguarding California Plan: 2018 Update* in January 2018, which provides a roadmap for state agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 Safeguarding California Plan includes 69 recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 state agencies (CNRA 2017). As with previous state adaptation plans, the 2018 Update addresses the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming.

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 Significance Criteria

The State of California has developed guidelines to address the significance of climate change impacts based on Appendix G of the CEQA Guidelines, which provides guidance that a project would have a significant environmental impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Neither the State of California nor the SBCAPCD has adopted emission-based thresholds of significance for GHG emissions under CEQA.

For purposes of GHG significance criterion 1 from Appendix G, the proposed project's GHG emissions are assessed by evaluating the propose project's consistency with the County's ECAP, as well as the project's potential to exceed a County-specific efficiency metric threshold (i.e., service population threshold) for 2024. The efficiency metric threshold developed for the purposes of this GHG emissions analysis is discussed below in detail.

For purposes of GHG significance criterion 2 from Appendix G, the Project is assessed based on its potential to conflict with the County's ECAP, SBCAG RTP, and CARB's Scoping Plan, including the 2030 Scoping Plan. The Scoping Plan goals and measures are analyzed against the proposed project as part of the consistency analysis. The potential for the project to conflict with these plans is addressed in detail below.

County Environmental Thresholds:

As discussed in Section 3.3, Local Regulations, the County of Santa Barbara Board of Supervisors adopted the ECAP in May 2015 and certified the accompanying EIR (Santa Barbara County 2015). The ECAP meets the criteria in CEQA Guidelines Section 15183.5(b) for a "plan to reduce GHG emissions." The ECAP commits the County to reduce community-wide GHG emissions by 15 percent below 2007 levels by 2020 consistent with the California Global Warming Solutions Act of 2006 (Assembly Bill 32) and the related Climate Change Scoping Plan (CARB 2008). However, the ECAP is not certified beyond 2020.

The ECAP included a GHG emissions forecast for unincorporated Santa Barbara County through 2020. The growth estimates used in the emissions forecast came from the Santa Barbara County

Regional Growth Forecast 2005-2040 prepared by the Santa Barbara County Association of Governments and incorporated 2010 U.S. Census data where available. The estimates were based on factors such as population projections, vehicle trends, and planned land uses. The sources of GHG emissions included various sectors, such as transportation, residential energy, commercial energy, off-road, solid waste, agriculture, water and wastewater, industrial energy, and aircraft. As a result, most residential and commercial projects that are consistent with the County's zoning (in 2007) were included in the forecast and would therefore be considered consistent with the ECAP. However, certain projects were not included in the emissions forecast, such as stationary source projects (e.g., large boilers, gas stations, auto body shops, dry cleaners, and water treatment facilities), Comprehensive Plan amendments, and community plans that exceed the County's projected population and job growth, due to uncertainty in forecasting their GHG emissions. Projects not included in the forecast must be evaluated on a case-by-case basis.

The proposed project would require a general plan amendment and/or zoning changes to reflect the proposed land use; therefore, buildout of the proposed project was not accounted for in the development of the County's emissions forecast. The ECAP EIR does, however, provide various GHG emission reduction measures in order to help the County achieve a 15 percent reduction in GHG emissions by 2020. The proposed project was compared with applicable reduction measures in the ECAP to determine consistency with the ECAP.

The County Specific Efficiency Metric

The significance criteria used in this GHG emissions analysis are those set forth above from the Appendix G of the CEQA Guidelines and, the application of those criteria informed by CEQA Guidelines Section 15064.4, and 15126.4. However, for information and disclosure purposes, this report also provides an additional analysis using an efficiency metric.

An efficiency metric is calculated by dividing the allowable GHG emissions inventory in a selected calendar year by the service population (residents plus employees), which then leads to the identification of a quantity of emissions that can be permitted of a per service population basis without significantly impacting the environment. This approach is appropriate for the proposed project because it measures the project's emissions on a per-service population basis to determine its overall GHG efficiency relative to regulatory GHG reduction goals, as a opposed to applying a relatively arbitrary threshold limit that may not be well substantiated. Under the efficiency metric, the project's GHG emissions are evaluated herein relative to the emissions level in the project's build out year and the associated efficiency metric. To that end, an efficiency metric was calculated based on the 2024 emission level (year of project build out) and the project's service population (sum of the number of employees and the number of residents provided by the project).

As there are no emissions, employment, or population specific to the project's buildout year (2024), population and employment data are generated for year 2024 by interpolating employment for years 2020 and 2035. To calculate emissions for year 2024, the CO_2e emissions are first calculated for 2020, so as to establish the benchmark for compliance with AB 32's 2020 reduction target (a return to 1990 levels) (CARB 2015b).

To develop the 2020 efficiency metric, emissions for the ECAP were used for year 2020, which includes enacted statewide and local GHG reduction measures. To develop the service population for that year, the SBCAG Regional Growth Forecast was relied upon for the forecasted population and employment data, which is consistent with the assumptions in the ECAP (SBCAG 2012). To develop the efficiency metric for 2024, the County's forecasted emissions in 2020 were reduced by 5.2% per year through 2024, which is consistent with the CARB's Scoping Plan target (CARB 2015b). The SBCAG 2010-2040 Regional Growth Forecast was then used to interpolate population and employment data for the year 2024 (SBCAG 2012). The population and employment data for 2020, 2035, and the interpolation for 2024 are detailed in Tables 3 and 4. If the project achieves the 2024 efficiency metric, the project would not interfere with the State's ability to achieve the mid-term GHG reduction target per SB 32 and EO s-3-05.

Table 3
2024 Interpolated Population and Employment

	2020	2035	2024[1]
Population	145,581	160,588	149,583
Employment	55,779	60,324	56,991
Total Service Population			206,574

Sources: SBCAG 2010-2040 Regional Growth Forecast (SBCAG 2011)
Notes:
2 The 2024 Service population was calculated as follows: (((2035 service population – 2020 service population) ÷ (2035 – 2020)) × (2024– 2020)) + (2020 service population).

The calculated efficiency metric for 2024 using both the CARB's Scoping Plan and the E-CAP and the interpolated service population are shown in Table 4.

Table 4
2024 Calculated Efficiency Metric

	Population	Employment	Service Population (Population + Employment)	Emissions (MT CO_2e)[1]	Efficiency Metric (MT CO_2e/SP/year)[2]

2024 Efficiency Metric	149,583	56,991	206,574	818,992	3.96

Sources:
[1] 2024 emissions were calculated based on the County's ECAP forecast for 2020 and using a 5.2% annual reduction based on the CARB Update to the Scoping Plan (CARB 2015b) (County Of Santa Barbara 2015).
Notes: CO_2e = carbon dioxide equivalent; MT = metric ton; SP = service population.

As shown in Table 4, the calculated efficiency metric for 2024 based on the CARB Scoping Plan projected emissions trajectory was 3.96 MT CO_2e/SP/year. Again, this 2024 efficiency metric reflects trajectory planned in the State's Scoping Plan. If the project achieves the 2024 efficiency metric, it would not interfere with the attainment of the 2030 and 2050 statewide emissions reduction targets, and therefore not interfere with the State's and the County's ability to achieve the mid-term and long-term GHG reduction targets in the ECAP.

5.2 Approach and Methodology

5.2.1 Construction

As discussed in Section 2.3, Global Warming Potential, this analysis assumes that the GWP for CH_4 is 25 and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007).

The project would result in the temporary addition of GHGs caused by on-site sources (i.e., off-road construction equipment and harbor craft) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Emissions from the construction phase of the project were estimated using CalEEMod, version 2016.3.2. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known.

For the purposes of modeling, it was assumed that construction of the proposed project would commence in June 2019[3] and would last approximately 55 months, ending in January 2024. The analysis contained herein is based on the following assumptions outline in Table 5 (duration of phases is approximate). Additionally, it was assumed that construction would occur concurrently, with each site developing approximately 30 homes per year.

[3] The analysis assumes a construction start date of June 2019, which represented the estimated start of construction when the project application was submitted to the county for processing. Current scheduling estimates represent an approximate 10-month delay, projecting activity starting in April 2020 and ending in November 2024. The scheduling estimates used in this analysis, however, represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years

Table 5
Construction Phasing Assumptions

Project Construction Phase	Construction Start Date	Construction End Date
Site Preparation (Both sites)	06/2019	02/2020
Grading (Both sites)	02/2020	09/2020
Building Construction-Phase 1 (Both sites)	09/2020	10/2021
Paving 1(Both sites)	10/2021	11/2021
Architectural Coating-Phase 1 (Both sites)	11/2021	12/2021
Building Construction 2 (Both sites)	12/2021	10/2022
Paving 2 (Both sites)	10/2022	11/2022
Architectural Coating-Phase 2 (Both sites)	11/2022	12/2022
Building Construction 3 (Willow Creek Only)	12/2022	11/2023
Paving 3 (Willow Creek Only)	11/2023	12/2023
Architectural Coating 3 (Willow Creek Only)	12/2023	01/2024

Notes: See Appendix A for details.

The construction equipment mix used for estimating the construction emissions of the project is based on CalEEMod defaults values and on information provided by the applicant and is shown in Table 6, Construction Scenario Assumptions. Table 6 presents anticipated construction at both the Willow Creek and Hidden Canyon neighborhoods. The project applicant outlined construction-phasing specifications and model defaults were incorporated where applicant data was not available. The default values generated by CalEEMod were also used for the construction equipment mix. For this analysis, it was assumed that construction equipment would operate 5 days a week during project construction. CalEEMod defaults were assumed for construction worker trips and vendor trips.

Table 6
Construction Scenario Assumptions

Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment	Quantity	Daily Usage Hours
Site Preparation	18	0	5,273	Rubber Tired Dozers	6	8
				Tractors/Loaders/Backhoes	8	8
Grading-Phase	20	0	5,273	Graders	2	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/Backhoes	4	8
				Scrapers	4	8
Building Construction	378	145	0	Cranes	2	7

Table 6
Construction Scenario Assumptions

Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment	Quantity	Daily Usage Hours
(Phases 1-3)						
				Forklifts	6	8
				Generator Sets	2	8
				Tractors/loaders/Backhoes	6	7
				Welders	2	8
Paving (Phases 1-3)	15	0	0	Pavers	4	8
				Paving Equipment	4	8
				Rollers	4	8
Architectural Coating (Phase 1-3)	76	0	0	Air Compressors	2	6

Notes: See Appendix A for details.

The proposed project would disturb approximately 92.2 acres of the 189-acre project site during site preparation and grading activities. Approximately 84,367 cubic yards of net cut would be required at the Hidden Canyon site and approximately 27,031 cubic yards of net fill at the Willow Creek site. Soil balance would occur within each subset area and offsite hauling would not be required. Balancing activities are anticipated to be performed through the use of off-road construction equipment (e.g., graders, dozers, backhoes, and scrapers). The hauling trips were calculated based on the amount of material transferred between the two project sites and assuming a 16 cubic yard capacity truck.

A detailed depiction of the construction schedule—including information regarding subphases, and equipment used during each subphase—is included in Appendix A of this report. The information contained in Appendix A was used as CalEEMod model inputs.

5.2.2 Operation

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as

described in the following text. The model also calculates the emissions from the combustion of wood or natural gas in stoves and fireplaces. The project is designed to only use natural gas stoves and fireplaces.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For Santa Barbara County, the average annual "summer" days are estimated to 180 days (CAPCOA 2016).

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

The estimation of operational energy emissions was based on CalEEMod land use defaults and units or total area (i.e., square footage) of the project's land uses. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Study. Emissions are calculated by multiplying the energy use by the utility carbon intensity (pounds of GHGs per kilowatt-hour for electricity or 1,000 British thermal units for natural gas) for CO_2 and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for Pacific Gas and Electric, which would be the energy source provider for the project.

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, became effective on January 1, 2017. The proposed project would be required to comply with the 2016 Title 24 energy standards.

Mobile Sources

Following the completion of construction activities, the project would generate GHG emissions from mobile sources (vehicular traffic), as a result of the residents from the project. The daily vehicle miles traveled were estimated using the CalEEMod default values for each land-use type. The estimated trip lengths and trip modes were based on CalEEMod defaults for every land-use. Default

trip generation rates included in CalEEMod were adjusted to match the project's trip generation provided in the Traffic and Circulation Study (Stantec 2018). The proposed project would result in 1,378 weekday trips. CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates because weekend trip-generation rates were not provided in the traffic study. The CalEEMod was used to estimate emissions from proposed vehicular sources (refer to Appendix A). CalEEMod default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2024 were conservatively used to estimate emissions associated with vehicular sources. The 2024 operational year represents the completion of the last phase of the project and would represent maximum daily operational emissions.

Solid Waste

The project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. Solid waste generation was derived from the CalEEMod default rates for each land-use type. Emission estimates associated with solid waste were estimated using CalEEMod. A solid waste diversion rate of 75% was assumed in accordance with AB 341.

Water Supply and Wastewater

Water supplied to the project requires the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through use of electricity. Annual water use for the project and GHG emissions associated with the electricity used for water supply were calculated based upon default water use estimates for each land-use type as estimated by CalEEMod and PG&E factors. The proposed project would include low-flow fixtures in all buildings and use water efficient irrigation system of the parks and greenbelts.

6 IMPACT ANALYSIS

The significance criteria described in Chapter 5, Significance Criteria and Methodology, were used to evaluate GHG emissions impacts associated with the project.

6.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The project would result in GHG emissions during construction, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, haul trucks and worker vehicles. Table 7 presents GHG emissions for the project from 2019 to 2024 from on-site and off-site emission sources. These emissions were estimated using CalEEMod with assumptions discussed in Section 5.3, Approach and Methodology. Detailed emission calculations are provided in Appendix A.

Table 7
Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2019	610.77	0.17	0.00	615.09
2020	1,271.44	0.35	0.00	1,280.14
2021	1,689.11	0.20	0.00	1,694.23
2022	1,646.98	0.20	0.00	1,652.00
2023	849.19	0.10	0.00	851.74
2024	1.76	0.00	0.00	1.76
Total	**6,069.24**	**1.03**	**0.00**	**6,094.97**
Amortized emissions over 30 years				**203.17**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

As shown in Table 7, the estimated total GHG emissions for the project would be approximately 615 MT CO_2e in 2019, 1,280 MT CO_2e in 2020, 1,694 MT CO_2e in 2021, 1,652 MT CO_2e in 2022, 852 MT CO_2e in 2023, and 2 MT CO_2e in 2024, for a total of 6,095 MT CO_2e. The project's total GHG emissions amortized over 30[4] years would be 203 MT CO_2e. Because there is no

[4] Neither the SBCAPCD nor the County have provided guidance on what the amortization period for individual projects should be. The South Coast Air Quality Management District and City of San Diego recommend a period of 30 years. In contrast, the San Luis Obispo County Air Pollution Control District recommends a 50-year period for residential projects and a 25-year period for non-residential or commercial projects. To provide a conservative estimate of emissions, the South Coast Air Quality Management District 30 year amortization period is utilized in this analysis.

construction-only GHG significance threshold, the amortized construction emissions will be added to the operational emissions and their significance will be evaluated against the operational thresholds.

Operational Impacts

Operation of the Project would result in GHG emissions from vehicular traffic, area sources (e.g., natural gas combustion and landscaping), electrical generation, water supply, and solid waste as described below. Table 8 shows the operational GHG emissions associated with the proposed project.

Table 8
Estimated Annual Operational Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	1.77	0.00	0.00	1.81
Energy	570.08	0.02	0.01	496.86
Mobile	903.43	0.04	0.01	908.80
Solid waste	21.14	1.05	0.00	23.67
Water supply and wastewater	40.33	0.01	0.01	34.14
			Total	**1,465.28**
			Amortized construction emissions	*203.17*
			Operation + amortized construction total	**1,668.45**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for detailed results.

As shown in Table 8, estimated annual project-generated GHG emissions in 2024 would be approximately 1,465 MT CO_2e per year as a result of project operations. Estimated annual project-generated emissions in 2024 from area, energy sources, mobile, solid waste, and water/wastewater sources, and amortized project construction emissions would be approximately 1,668 MT CO_2e per year.

County-Specific Efficiency Metric

As discussed in Section 5.1, the other quantitative significance threshold for the proposed project was to perform a quantitative analysis using a County-specific efficiency metric threshold for a post-2020 year (i.e., 2024). The efficiency metric calculated for 2024 (as shown in Section 5.1, Significance Criteria) is 3.96 MT CO_2e/SP/year.

As discussed in Section 5.2.2, the proposed project is anticipated to have 431[5] residents (SBCAG 2012) for the service population. Using the estimated operational emissions of 1,668 MT CO_2e and service population of 431, the project would have a GHG efficiency metric of 3.87 MT CO_2e/SP/year. **The proposed project's efficiency metric would not exceed the significance threshold efficiency metric of 3.96 MT CO_2e/SP/year. Therefore, the proposed project would be considered to have a less than significant impact with respect to GHG emissions without mitigation.**

6.2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

This section discusses the proposed project's compliance the County's ECAP, SBCAG's RTP and CARB's Scoping Plan.

Consistency with the ECAP

As discussed in section 5.1, the ECAP EIR contains a programmatic analysis of GHG emissions for unincorporated Santa Barbara County and a project may tier from the ECAP's certified EIR for its impact analysis of GHG emissions if a project emissions were considered in the ECAP and the project does not exceed the growth projections assumed in the ECAP. However, the proposed project would require a general plan amendment and/or a zoning change of the project site in order to accommodate the proposed project's uses. Therefore, the proposed project was not accounted for in development of the ECAP.

In order to reduce countywide GHG emissions, the ECAP identifies 53 County- and community-wide programmatic emission reduction measures intended to achieve the 15 percent GHG emissions reduction target by 2020. The County created the Energy and Sustainability Initiatives Division and is taking other steps to implement and monitor the effectiveness of these measures throughout the unincorporated county. For example, the emPower Program assists homeowners county wide overcome obstacles to making energy savings improvements to their homes. Although it is not explicitly defined within ECAP that the GHG reduction measures are used to determine a project's consistency, a project that would implement any of the ECAP measures applicable to residential development would assist in achieving attainment of the ECAP goals for the County as a whole and therefore would not conflict with the ECAP.

[5] The proposed project's estimated population of 431 was obtained by interpolating the average household size between years 2020 (445,891 persons ÷ 149,900 households = 2.97) and 2025 (495,000 persons ÷ 159,600 households = 2.95) resulting in an average household size of 2.95 for the year 2024 (i.e., full project buildout).

The analysis presented in Table 9 illustrates the proposed project's consistency with applicable measures of the ECAP. **As shown in Table 9, the proposed project would not conflict with or obstruct implementation of the ECAP, and therefore impacts associated with the consistency with the ECAP would be less than significant.**

Table 9
County of Santa Barbara ECAP Consistency Analysis

ECAP Measure	Consistency Analysis
CCE: Community Choice Aggregation	Consistent: A CCE program would be developed which would allow residents to procure energy from a portfolio of choices available.
SCS: Sustainable Communities Strategy	This measure does not apply to the proposed project.
LUD 1: Infill Development	This measure does not apply to the proposed project.
LUD 2: Transit-Oriented Development	Consistent: The proposed project would develop a two-mile trail system interconnected with existing infrastructure.
LUD 3: Affordable Housing	The proposed project is consistent with the provisions of the Santa Barbara Inclusionary Housing Element as the proposed project would pay a fee to offset not including onsite affordable housing.
T 1: Car Sharing and Ride Sharing	This measure does not apply to the proposed project.
T 2: Commuter Incentives	This measure does not apply to the proposed project.
T 3: Alternative-Fuel Vehicles and Incentives	This measure does not apply to the proposed project.
T 4: Alternative and Active Transportation	This measure does not apply to the proposed project.
T 5: Integrated Bikeway System	Consistent: The proposed project would develop a two-mile trail system.
T 6: Pedestrian Improvements	Consistent. The proposed project would include a pedestrian pathway system to promote walkability within the community.
T 7: Vehicle Idling	This measure does not apply to the proposed project.
T 8: Traffic Efficiencies	This measure does not apply to the proposed project.
T 9: Commuter Rail Connections	This measure does not apply to the proposed project.
BE 1: Energy Efficiency Education and Outreach	This measure does not apply to the proposed project.
BE 2: Energy-Efficient Renovations	This measure does not apply to the proposed project.
BE 3: Green Business Participation	This measure does not apply to the proposed project.
BE 4: Energy Efficiency Education and Outreach to New Homeowners and Nonresidential Building Owners	This measure does not apply to the proposed project.
BE 5: Community Forestry	Consistent: The proposed project would include 123-acres of open space will consist of 29.8 acres of managed open space and 97 acres of undisturbed open space.
BE 6: Smart Grid Technology	This measure does not apply to the proposed project.
BE 7: Lawn and Garden Equipment	Consistent: Electrical outlets would be provided on the exterior of each residential unit.
BE 8: Energy Efficiency and Green Building Standards	Consistent: The proposed project will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
BE 9: Efficient Building Design	Consistent: The proposed project will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.

Table 9
County of Santa Barbara ECAP Consistency Analysis

ECAP Measure	Consistency Analysis
BE 10: Construction Equipment Operations	Consistent: Construction activities would adhere with regulations developed by the SCAPCD and CARB.
BE 11: Energy Code Training	This measure does not apply to the proposed project.
RE 1: Alternative Energy Development	Consistent: 100% of the residential units will be pre-wired for solar power.
RE 2: Water Heaters	Consistent: Recirculating, point-of-use, or on-demand water heaters would be installed in all residences.
RE 3: Alternative Energy Incentives	This measure does not apply to the proposed project.
RE 4: Utility-Scale Renewable Energy Projects	Consistent: 100% of the residential units will be pre-wired for solar power.
IEE 1: Efficient Equipment Incentives	This measure does not apply to the proposed project.
IEE 2: Energy Management Incentives	This measure does not apply to the proposed project.
IEE 3: Efficient Upgrade Incentives	This measure does not apply to the proposed project.
IEE 4: Efficient Equipment	This measure does not apply to the proposed project.
WR 1: Waste Reduction	Consistent: The proposed project would meet the requirements of AB 341 by diverting 75% of waste from landfills.
WR 2: Increased Recycling Opportunities	Consistent: The proposed project would meet the requirements of AB 341 by diverting 75% of waste from landfills.
WR 3: Construction and Demolition Waste Recycling	This measure does not apply to the proposed project.
WR 4: Landfill Disposal Reductions	This measure does not apply to the proposed project.
WR 5: Clean Waste Collection Vehicles	This measure does not apply to the proposed project.
AG 1: Local Food Programs	This measure does not apply to the proposed project.
AG 2: Agricultural Conservation Practices	This measure does not apply to the proposed project.
AG 3: Agricultural Equipment	This measure does not apply to the proposed project.
AG 4: Energy-Efficient Agricultural Operations	This measure does not apply to the proposed project.
AG 5: Agriculture Irrigation Improvements	This measure does not apply to the proposed project.
AG 6: Agriculture and Open Space Easements	This measure does not apply to the proposed project.
WE 1: Water Conservation Programs	Consistent: The proposed project would implement water efficient systems such as Low-flow plumbing fixtures.
WE 2: Water-Efficient Building and Landscape Standards	Consistent: The proposed project would implement evapotranspiration irrigation controllers and private irrigation systems. Furthermore, water-efficient systems, such as drip or bubblers, are encouraged in all areas needing irrigation except turf irrigation and small ornamental plantings. Efficient use of water from the roof drains for landscape irrigation would also be encouraged.
WE 3: Water-Efficient Landscaping	Consistent: The proposed project would encourage compatible, non-invasive, climate-suitable and drought-tolerant landscape designs, and plants would be grouped by water needs.
GO 1: Energy Efficiency and Retrofits, Education, and Financing	This measure does not apply to the proposed project.
GO 2: Zero Net Energy	This measure does not apply to the proposed project.
GO 3: Fuel-Efficient and Alternative Fuel Vehicle Fleet	This measure does not apply to the proposed project.
GO 4: Commute Trip and Fuel Use Reductions	This measure does not apply to the proposed project.
GO 5: Environmentally Preferable Procurement	This measure does not apply to the proposed project.
GO 6: Water Efficiency and Conservation	This measure does not apply to the proposed project.

Source: County of Santa Barbara 2015.

Consistency with SBCAG's 2010-2040 Regional Transportation Plan

With regards to consistency with the SBCAG's Regional Plan, the proposed project would include site design elements developed to support the policy objectives of the RTP and SB 375 where applicable. For example, the proposed project includes 123 acres of open space, including a trail and greenbelt system that connects the residential units to the regional trail system. In addition, the proposed project would provide traffic calming measures along all new roads. Table 10 shows the proposed project's consistency with all applicable goals and policy objectives (SBCAG 2011).

Table 10
2010-2040 RTP/SCS Consistency Analysis

Policy Objective or Strategy	Consistency Analysis
E1- Reduce GHG emissions in compliance with ARB Regional Targets	Consistent. The proposed project would not inhibit SBCAG from reaching its regional GHG emission targets. The project would include sustainable design measures that would reduce GHG emissions.
E2 - Reduce criteria pollutant emission	Consistent. The proposed project would include sustainable design measures that would reduce air pollutant emissions
E3- Encourage affordable and workforce housing and mixed use development within urban boundaries	The proposed project is not within existing urban boundaries and thus this objective does not apply.
E4- Promote transit use and alternative transportation	This objective does not apply to the proposed project.
E5- Reduce vehicles miles traveled	This objective does not apply to the proposed project.
E6- Preserve open space and agricultural land	Consistent. The proposed project would provide 123 acres of open space of the total 189-acre project site.
M&SR3- increase bike, walk and transit mode share	This objective does not apply to the proposed project.
M&SR4- Employ best available transportation system management (TSM) technologies to make travel reliable and convenient	This objective does not apply to the proposed project.
M&SR5- Work cooperatively with schools and school districts to reduce congestion in surrounding neighborhoods	This objective does not apply to the proposed project.
Eq1- Comply with HCD/Regional Housing Needs Assessment	Consistent. The proposed project would assist the county in meeting its housing requirements.
Eq2- Provide adequate affordable and workforce housing near jobs	Consistent. The proposed project is consistent with the provisions of the Santa Barbara Inclusionary Housing Element as the proposed project would pay a fee to offset not including onsite affordable housing.

Table 10
2010-2040 RTP/SCS Consistency Analysis

Policy Objective or Strategy	Consistency Analysis
H&S1- Prevent accidents, injuries, and fatalities on the transportation system	This objective does not apply to the proposed project.
H&S2- Increase physical fitness by increasing rates of bicycling and walking trips	This objective does not apply to the proposed project.
H&S3- Increase public outreach and education	This objective does not apply to the proposed project.
PE-1 Reduce congestion	This objective does not apply to the proposed project.
PE2- Optimize network performance to reduce time lost to commuting	This objective does not apply to the proposed project.
PE3- Encourage measures that bring worker housing closer to job sites	This objective does not apply to the proposed project.
PE4- Promote a mix of land uses responsive to the needs of businesses, including agriculture and tourism	This objective does not apply to the proposed project.

Source: SBCAG. 2017.

Consistency with CARB's Scoping Plan

The Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the California Natural Resources Agency observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009a). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard (LCFS)), among others. The proposed project would comply with all applicable regulations adopted in furtherance of the Scoping Plan to the extent required by law.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 11 highlights measures that have been developed under the Scoping Plan and the project's consistency with Scoping Plan measures. The table also includes measures proposed in the Draft 2017 Scoping Plan Update. **To the extent that these regulations**

are applicable to the proposed project, its inhabitants, or uses, the proposed project would comply with all applicable regulations adopted in furtherance of the Scoping Plan.

Table 11
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	The proposed project's residents would potentially purchase new vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025 (4.2 million ZEVs by 2030)	Proposed	This measure does not apply to the proposed project.
Low Carbon Fuel Standard	T-2	Motor vehicles driven by the proposed project's residents and employees would use compliant fuels.
Low Carbon Fuel Standard (18% reduction in carbon intensity by 2030)	Proposed	Motor vehicles driven by the proposed project's residents and employees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	The proposed project would implement traffic calming measures and encourage use of alternative forms of transportation.
Advanced Clean Transit	Proposed	This measure does not apply to the proposed project .
Last Mile Delivery	Proposed	This measure does not apply to the proposed project.
Reduction in Vehicle Miles Traveled	Proposed	The proposed project provides walkable internal pedestrian networks connecting residents to open space areas. Given that the project site is several miles from Old Town Orcutt and 4 miles from Santa Maria and no public transit exists along State Highway 1, this measure does not apply to the proposed project.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	The proposed project's residents would potentially purchase new vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Ship Electrification at Ports (Shore Power)	T-5	This measure does not apply to the proposed project.

Table 11
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	This measure does not apply to the proposed project.
California Sustainable Freight Action Plan	Proposed	This measure does not apply to the proposed project.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	This measure does not apply to the proposed project.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	This measure does not apply to the proposed project.
Medium and Heavy-Duty GHG Phase 2	Proposed	This measure does not apply to the proposed project.
High-Speed Rail	T-9	This measure does not apply to the proposed project.

Table 11
Project Consistency with Scoping Plan GHG Emission Reduction Strategies (cont.)

Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	The proposed project will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	The proposed project will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	The proposed project would not employ solar water heating as part of the design.
Combined Heat and Power	E-2	This measure does not apply to the proposed project.
Renewable Portfolios Standard (33% by 2020)	E-3	The proposed project would use energy supplied by PG&E which is in compliance with the RPS.
Renewable Portfolios Standard (50% by 2050)	Proposed	The proposed project would use energy supplied by PG&E which is in compliance with the RPS.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	All residential units would be pre-wired for solar photovoltaic energy systems.
Water Sector		
Water Use Efficiency	W-1	The proposed project is going to utilize water saving features.
Water Recycling	W-2	The proposed project would not include water recycling but would include water efficient irrigation systems.
Water System Energy Efficiency	W-3	This is applicable for the transmission and treatment of water, but it is not applicable for the proposed project.
Reuse Urban Runoff	W-4	The proposed project would provide preserve 123 acres of open space preventing additional urban runoff.
Renewable Energy Production	W-5	Applicable for wastewater treatment systems. Not applicable for the proposed project.
Green Buildings		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	The proposed project would be required to be constructed in compliance with state or local green building standards in effect at the time of building construction.
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The proposed project's buildings would meet green building standards that are in effect at the time of design and construction.
3. Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The proposed project would be required to be constructed in compliance with local green building standards in effect at the time of building construction.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	This is applicable for existing buildings only and is not applicable.

Table 11
Project Consistency with Scoping Plan GHG Emission Reduction Strategies (cont.)

Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	This is not applicable to the proposed project.
Oil and Gas Extraction GHG Emission Reduction	I-2	This is not applicable to the proposed project.
Reduce GHG Emissions by 20% in Oil Refinery Sector	Proposed	This is not applicable to the proposed project.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	This is not applicable to the proposed project.
Refinery Flare Recovery Process Improvements	I-4	This is not applicable to the proposed project.
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks	I-5	This is not applicable to the proposed project.
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	This is not applicable to the proposed project.
Increasing the Efficiency of Landfill Methane Capture	RW-2	This is not applicable to the proposed project.
Mandatory Commercial Recycling	RW-3	During both construction and operation of the project, the project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all wastes would be recycled to the maximum extent possible.
Increase Production and Markets for Compost and Other Organics	RW-3	This is not applicable to the proposed project.
Anaerobic/Aerobic Digestion	RW-3	This is not applicable to the proposed project.
Extended Producer Responsibility	RW-3	This is not applicable to the proposed project.
Environmentally Preferable Purchasing	RW-3	This is not applicable to the proposed project.
Forests Sector		
Sustainable Forest Target	F-1	This is not applicable to the proposed project.

Table 11
Project Consistency with Scoping Plan GHG Emission Reduction Strategies (cont.)

High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	This is not applicable to the proposed project.
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	This is not applicable to the proposed project.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	This is not applicable to the proposed project.
Limit High GWP Use in Consumer Products	H-4	The proposed project's residents would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the proposed project's residents would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	This is not applicable to the proposed project.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	This is not applicable to the proposed project.
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	This is not applicable to the proposed project.
40 percent reduction in methane and hydrofluorocarbon (HFC) emissions	Proposed	This is not applicable to the proposed project.
50 percent reduction in black carbon emissions	Proposed	This is not applicable to the proposed project.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	This is not applicable to the proposed project.

Source: CARB 2008 and CARB 2017.

Based on the analysis in Table 11, the proposed project would be consistent with the applicable strategies and measures in CARB's Scoping Plan.

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8 LIST OF PREPARERS

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APPENDIX A

Detailed Calculation Tables

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:29 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour.

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3435	3.8136	1.8031	3.5500e-003	1.3958	0.1830	1.5788	0.7605	0.1684	0.9289	0.0000	325.2386	325.2386	0.0886	0.0000	327.4541
2020	0.4764	5.4932	3.4003	7.3500e-003	1.0057	0.2209	1.2266	0.4348	0.2036	0.6383	0.0000	660.4100	660.4100	0.1768	0.0000	664.8307
2021	1.1619	3.7313	3.3998	9.0200e-003	0.3404	0.1199	0.4603	0.0925	0.1127	0.2052	0.0000	831.9416	831.9416	0.1016	0.0000	834.4825
2022	1.1186	3.3462	3.1852	8.7100e-003	0.3328	0.0994	0.4322	0.0904	0.0934	0.1839	0.0000	803.9797	803.9797	0.0988	0.0000	806.4487
Maximum	**1.1619**	**5.4932**	**3.4003**	**9.0200e-003**	**1.3958**	**0.2209**	**1.5788**	**0.7605**	**0.2036**	**0.9289**	**0.0000**	**831.9416**	**831.9416**	**0.1768**	**0.0000**	**834.4825**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3435	3.8136	1.8031	3.5500e-003	0.5562	0.1830	0.7392	0.2998	0.1684	0.4682	0.0000	325.2383	325.2383	0.0886	0.0000	327.4538
2020	0.4764	5.4932	3.4003	7.3500e-003	0.4328	0.2209	0.6537	0.1805	0.2036	0.3840	0.0000	660.4094	660.4094	0.1768	0.0000	664.8301
2021	1.1619	3.7313	3.3998	9.0200e-003	0.3404	0.1199	0.4603	0.0925	0.1127	0.2052	0.0000	831.9413	831.9413	0.1016	0.0000	834.4822
2022	1.1186	3.3462	3.1852	8.7100e-003	0.3328	0.0994	0.4322	0.0904	0.0934	0.1839	0.0000	803.9794	803.9794	0.0988	0.0000	806.4484
Maximum	**1.1619**	**5.4932**	**3.4003**	**9.0200e-003**	**0.5562**	**0.2209**	**0.7392**	**0.2998**	**0.2036**	**0.4682**	**0.0000**	**831.9413**	**831.9413**	**0.1768**	**0.0000**	**834.4822**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**45.94**	**0.00**	**38.20**	**51.88**	**0.00**	**36.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Energy	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	189.5425	189.5425	7.6200e-003	2.8300e-003	190.5750
Mobile	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Waste						0.0000	0.0000		0.0000	0.0000	16.2829	0.0000	16.2829	0.8074	0.0000	36.4683
Water						0.0000	0.0000		0.0000	0.0000	1.2909	16.4122	17.7030	5.4000e-003	3.0000e-003	18.7332
Total	**0.8776**	**0.5553**	**1.7715**	**4.2500e-003**	**0.3684**	**0.0116**	**0.3800**	**0.0989**	**0.0114**	**0.1103**	**17.5738**	**553.1546**	**570.7284**	**0.8377**	**5.8300e-003**	**593.4076**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Energy	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	189.5425	189.5425	7.6200e-003	2.8300e-003	190.5750
Mobile	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Waste						0.0000	0.0000		0.0000	0.0000	4.0707	0.0000	4.0707	0.2019	0.0000	9.1171
Water						0.0000	0.0000		0.0000	0.0000	1.0327	13.1297	14.1624	4.3200e-003	2.4000e-003	14.9866
Total	**0.8776**	**0.5553**	**1.7715**	**4.2500e-003**	**0.3684**	**0.0116**	**0.3800**	**0.0989**	**0.0114**	**0.1103**	**5.1034**	**549.8722**	**554.9756**	**0.2310**	**5.2300e-003**	**562.3097**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**70.96**	**0.59**	**2.76**	**72.42**	**10.29**	**5.24**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3765	0.0000	1.3765	0.7553	0.0000	0.7553	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6820	259.6820	0.0822	0.0000	261.7360
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**1.3765**	**0.1817**	**1.5581**	**0.7553**	**0.1671**	**0.9224**	**0.0000**	**259.6820**	**259.6820**	**0.0822**	**0.0000**	**261.7360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3459	0.0895	5.8000e-004	0.0109	1.2700e-003	0.0122	2.9600e-003	1.2200e-003	4.1700e-003	0.0000	58.4366	58.4366	6.1900e-003	0.0000	58.5912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**0.0140**	**0.3501**	**0.1263**	**6.6000e-004**	**0.0193**	**1.3300e-003**	**0.0207**	**5.2100e-003**	**1.2700e-003**	**6.4700e-003**	**0.0000**	**65.5566**	**65.5566**	**6.4600e-003**	**0.0000**	**65.7181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5368	0.0000	0.5368	0.2946	0.0000	0.2946	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6817	259.6817	0.0822	0.0000	261.7357
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**0.5368**	**0.1817**	**0.7185**	**0.2946**	**0.1671**	**0.4617**	**0.0000**	**259.6817**	**259.6817**	**0.0822**	**0.0000**	**261.7357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.2000e-003	0.3459	0.0895	5.8000e-004	0.0109	1.2700e-003	0.0122	2.9600e-003	1.2200e-003	4.1700e-003	0.0000	58.4366	58.4366	6.1900e-003	0.0000	58.5912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**0.0140**	**0.3501**	**0.1263**	**6.6000e-004**	**0.0193**	**1.3300e-003**	**0.0207**	**5.2100e-003**	**1.2700e-003**	**6.4700e-003**	**0.0000**	**65.5566**	**65.5566**	**6.4600e-003**	**0.0000**	**65.7181**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2202	0.0000	0.2202	0.1197	0.0000	0.1197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4412
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2202**	**0.0264**	**0.2466**	**0.1197**	**0.0243**	**0.1440**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4412**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2300e-003	0.0514	0.0129	9.0000e-005	8.8700e-003	1.4000e-004	9.0100e-003	2.2200e-003	1.3000e-004	2.3500e-003	0.0000	9.1897	9.1897	9.8000e-004	0.0000	9.2141
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.9200e-003**	**0.0520**	**0.0180**	**1.0000e-004**	**0.0102**	**1.5000e-004**	**0.0104**	**2.5700e-003**	**1.4000e-004**	**2.7100e-003**	**0.0000**	**10.2793**	**10.2793**	**1.0200e-003**	**0.0000**	**10.3046**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0859	0.0000	0.0859	0.0467	0.0000	0.0467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4411
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.0859**	**0.0264**	**0.1123**	**0.0467**	**0.0243**	**0.0709**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4411**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2300e-003	0.0514	0.0129	9.0000e-005	8.8700e-003	1.4000e-004	9.0100e-003	2.2200e-003	1.3000e-004	2.3500e-003	0.0000	9.1897	9.1897	9.8000e-004	0.0000	9.2141
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.9200e-003**	**0.0520**	**0.0180**	**1.0000e-004**	**0.0102**	**1.5000e-004**	**0.0104**	**2.5700e-003**	**1.4000e-004**	**2.7100e-003**	**0.0000**	**10.2793**	**10.2793**	**1.0200e-003**	**0.0000**	**10.3046**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7190	0.0000	0.7190	0.2972	0.0000	0.2972	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4954	449.4954	0.1454	0.0000	453.1298
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.7190**	**0.1794**	**0.8983**	**0.2972**	**0.1650**	**0.4622**	**0.0000**	**449.4954**	**449.4954**	**0.1454**	**0.0000**	**453.1298**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0500e-003	0.3771	0.0944	6.7000e-004	0.0113	1.0100e-003	0.0123	3.0900e-003	9.6000e-004	4.0600e-003	0.0000	67.3911	67.3911	7.1600e-003	0.0000	67.5700
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**0.0144**	**0.3816**	**0.1336**	**7.6000e-004**	**0.0215**	**1.0800e-003**	**0.0225**	**5.8000e-003**	**1.0200e-003**	**6.8300e-003**	**0.0000**	**75.7143**	**75.7143**	**7.4400e-003**	**0.0000**	**75.9003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2804	0.0000	0.2804	0.1159	0.0000	0.1159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4949	449.4949	0.1454	0.0000	453.1293
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.2804**	**0.1794**	**0.4598**	**0.1159**	**0.1650**	**0.2809**	**0.0000**	**449.4949**	**449.4949**	**0.1454**	**0.0000**	**453.1293**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0500e-003	0.3771	0.0944	6.7000e-004	0.0113	1.0100e-003	0.0123	3.0900e-003	9.6000e-004	4.0600e-003	0.0000	67.3911	67.3911	7.1600e-003	0.0000	67.5700
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**0.0144**	**0.3816**	**0.1336**	**7.6000e-004**	**0.0215**	**1.0800e-003**	**0.0225**	**5.8000e-003**	**1.0200e-003**	**6.8300e-003**	**0.0000**	**75.7143**	**75.7143**	**7.4400e-003**	**0.0000**	**75.9003**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6352	26.6352	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6352**	**26.6352**	**6.5000e-003**	**0.0000**	**26.7976**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4200e-003	0.1774	0.0619	3.8000e-004	9.2900e-003	9.5000e-004	0.0103	2.6800e-003	9.1000e-004	3.5900e-003	0.0000	37.2853	37.2853	2.8200e-003	0.0000	37.3557
Worker	0.0133	0.0112	0.0983	2.3000e-004	0.0256	1.7000e-004	0.0257	6.8000e-003	1.5000e-004	6.9500e-003	0.0000	20.8837	20.8837	7.1000e-004	0.0000	20.9015
Total	**0.0197**	**0.1887**	**0.1602**	**6.1000e-004**	**0.0349**	**1.1200e-003**	**0.0360**	**9.4800e-003**	**1.0600e-003**	**0.0105**	**0.0000**	**58.1690**	**58.1690**	**3.5300e-003**	**0.0000**	**58.2572**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6351	26.6351	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6351**	**26.6351**	**6.5000e-003**	**0.0000**	**26.7976**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4200e-003	0.1774	0.0619	3.8000e-004	9.2900e-003	9.5000e-004	0.0103	2.6800e-003	9.1000e-004	3.5900e-003	0.0000	37.2853	37.2853	2.8200e-003	0.0000	37.3557
Worker	0.0133	0.0112	0.0983	2.3000e-004	0.0256	1.7000e-004	0.0257	6.8000e-003	1.5000e-004	6.9500e-003	0.0000	20.8837	20.8837	7.1000e-004	0.0000	20.9015
Total	**0.0197**	**0.1887**	**0.1602**	**6.1000e-004**	**0.0349**	**1.1200e-003**	**0.0360**	**9.4800e-003**	**1.0600e-003**	**0.0105**	**0.0000**	**58.1690**	**58.1690**	**3.5300e-003**	**0.0000**	**58.2572**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7446	239.7446	0.0578	0.0000	241.1906
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7446**	**239.7446**	**0.0578**	**0.0000**	**241.1906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0478	1.4635	0.4970	3.3700e-003	0.0837	4.3400e-003	0.0880	0.0241	4.1500e-003	0.0283	0.0000	332.8065	332.8065	0.0253	0.0000	333.4397
Worker	0.1109	0.0900	0.8001	2.0100e-003	0.2301	1.4500e-003	0.2316	0.0612	1.3400e-003	0.0625	0.0000	181.5708	181.5708	5.6800e-003	0.0000	181.7127
Total	**0.1587**	**1.5535**	**1.2971**	**5.3800e-003**	**0.3138**	**5.7900e-003**	**0.3196**	**0.0853**	**5.4900e-003**	**0.0908**	**0.0000**	**514.3773**	**514.3773**	**0.0310**	**0.0000**	**515.1524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7443	239.7443	0.0578	0.0000	241.1903
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7443**	**239.7443**	**0.0578**	**0.0000**	**241.1903**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0478	1.4635	0.4970	3.3700e-003	0.0837	4.3400e-003	0.0880	0.0241	4.1500e-003	0.0283	0.0000	332.8065	332.8065	0.0253	0.0000	333.4397
Worker	0.1109	0.0900	0.8001	2.0100e-003	0.2301	1.4500e-003	0.2316	0.0612	1.3400e-003	0.0625	0.0000	181.5708	181.5708	5.6800e-003	0.0000	181.7127
Total	**0.1587**	**1.5535**	**1.2971**	**5.3800e-003**	**0.3138**	**5.7900e-003**	**0.3196**	**0.0853**	**5.4900e-003**	**0.0908**	**0.0000**	**514.3773**	**514.3773**	**0.0310**	**0.0000**	**515.1524**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0229**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0229**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.7569**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.7400e-003	0.0155	4.0000e-005	4.4500e-003	3.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.5086	3.5086	1.1000e-004	0.0000	3.5114
Total	**2.1400e-003**	**1.7400e-003**	**0.0155**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4800e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.5086**	**3.5086**	**1.1000e-004**	**0.0000**	**3.5114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.7569**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.7400e-003	0.0155	4.0000e-005	4.4500e-003	3.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.5086	3.5086	1.1000e-004	0.0000	3.5114
Total	**2.1400e-003**	**1.7400e-003**	**0.0155**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4800e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.5086**	**3.5086**	**1.1000e-004**	**0.0000**	**3.5114**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2300e-003	0.0990	0.0336	2.3000e-004	5.6600e-003	2.9000e-004	5.9500e-003	1.6300e-003	2.8000e-004	1.9100e-003	0.0000	22.5087	22.5087	1.7100e-003	0.0000	22.5515
Worker	7.5000e-003	6.0900e-003	0.0541	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2300e-003	0.0000	12.2802	12.2802	3.8000e-004	0.0000	12.2898
Total	**0.0107**	**0.1051**	**0.0877**	**3.7000e-004**	**0.0212**	**3.9000e-004**	**0.0216**	**5.7700e-003**	**3.7000e-004**	**6.1400e-003**	**0.0000**	**34.7888**	**34.7888**	**2.0900e-003**	**0.0000**	**34.8412**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2300e-003	0.0990	0.0336	2.3000e-004	5.6600e-003	2.9000e-004	5.9500e-003	1.6300e-003	2.8000e-004	1.9100e-003	0.0000	22.5087	22.5087	1.7100e-003	0.0000	22.5515
Worker	7.5000e-003	6.0900e-003	0.0541	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2300e-003	0.0000	12.2802	12.2802	3.8000e-004	0.0000	12.2898
Total	**0.0107**	**0.1051**	**0.0877**	**3.7000e-004**	**0.0212**	**3.9000e-004**	**0.0216**	**5.7700e-003**	**3.7000e-004**	**6.1400e-003**	**0.0000**	**34.7888**	**34.7888**	**2.0900e-003**	**0.0000**	**34.8412**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2633	250.2633	0.0600	0.0000	251.7622
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2633**	**250.2633**	**0.0600**	**0.0000**	**251.7622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0459	1.4485	0.4776	3.4700e-003	0.0873	3.9800e-003	0.0913	0.0252	3.8100e-003	0.0290	0.0000	344.3392	344.3392	0.0268	0.0000	345.0085
Worker	0.1078	0.0839	0.7594	2.0200e-003	0.2401	1.4700e-003	0.2416	0.0638	1.3500e-003	0.0652	0.0000	182.7080	182.7080	5.2700e-003	0.0000	182.8398
Total	**0.1537**	**1.5325**	**1.2370**	**5.4900e-003**	**0.3274**	**5.4500e-003**	**0.3329**	**0.0890**	**5.1600e-003**	**0.0942**	**0.0000**	**527.0472**	**527.0472**	**0.0320**	**0.0000**	**527.8483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2630	250.2630	0.0600	0.0000	251.7619
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2630**	**250.2630**	**0.0600**	**0.0000**	**251.7619**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0459	1.4485	0.4776	3.4700e-003	0.0873	3.9800e-003	0.0913	0.0252	3.8100e-003	0.0290	0.0000	344.3392	344.3392	0.0268	0.0000	345.0085
Worker	0.1078	0.0839	0.7594	2.0200e-003	0.2401	1.4700e-003	0.2416	0.0638	1.3500e-003	0.0652	0.0000	182.7080	182.7080	5.2700e-003	0.0000	182.8398
Total	**0.1537**	**1.5325**	**1.2370**	**5.4900e-003**	**0.3274**	**5.4500e-003**	**0.3329**	**0.0890**	**5.1600e-003**	**0.0942**	**0.0000**	**527.0472**	**527.0472**	**0.0320**	**0.0000**	**527.8483**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.7568**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5500e-003	0.0141	4.0000e-005	4.4500e-003	3.0000e-005	4.4700e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.3835	3.3835	1.0000e-004	0.0000	3.3859
Total	**2.0000e-003**	**1.5500e-003**	**0.0141**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4700e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.3835**	**3.3835**	**1.0000e-004**	**0.0000**	**3.3859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.7568**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5500e-003	0.0141	4.0000e-005	4.4500e-003	3.0000e-005	4.4700e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	3.3835	3.3835	1.0000e-004	0.0000	3.3859
Total	**2.0000e-003**	**1.5500e-003**	**0.0141**	**4.0000e-005**	**4.4500e-003**	**3.0000e-005**	**4.4700e-003**	**1.1800e-003**	**3.0000e-005**	**1.2100e-003**	**0.0000**	**3.3835**	**3.3835**	**1.0000e-004**	**0.0000**	**3.3859**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352
Unmitigated	0.1320	0.4755	1.3238	3.7500e-003	0.3684	3.2300e-003	0.3716	0.0989	3.0200e-003	0.1019	0.0000	346.5205	346.5205	0.0166	0.0000	346.9352

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.6851	102.6851	5.9600e-003	1.2300e-003	103.2016
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.6851	102.6851	5.9600e-003	1.2300e-003	103.2016
NaturalGas Mitigated	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
NaturalGas Unmitigated	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.62765e+006	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
Total		**8.7800e-003**	**0.0750**	**0.0319**	**4.8000e-004**		**6.0600e-003**	**6.0600e-003**		**6.0600e-003**	**6.0600e-003**	**0.0000**	**86.8573**	**86.8573**	**1.6600e-003**	**1.5900e-003**	**87.3735**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.62765e+006	8.7800e-003	0.0750	0.0319	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8573	86.8573	1.6600e-003	1.5900e-003	87.3735
Total		**8.7800e-003**	**0.0750**	**0.0319**	**4.8000e-004**		**6.0600e-003**	**6.0600e-003**		**6.0600e-003**	**6.0600e-003**	**0.0000**	**86.8573**	**86.8573**	**1.6600e-003**	**1.5900e-003**	**87.3735**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	453072	102.6851	5.9600e-003	1.2300e-003	103.2016
Total		**102.6851**	**5.9600e-003**	**1.2300e-003**	**103.2016**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	453072	102.6851	5.9600e-003	1.2300e-003	103.2016
Total		**102.6851**	**5.9600e-003**	**1.2300e-003**	**103.2016**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Unmitigated	0.7369	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6609					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0125	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Total	**0.7369**	**4.7900e-003**	**0.4158**	**2.0000e-005**		**2.3000e-003**	**2.3000e-003**		**2.3000e-003**	**2.3000e-003**	**0.0000**	**0.6795**	**0.6795**	**6.5000e-004**	**0.0000**	**0.6959**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6609					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0125	4.7900e-003	0.4158	2.0000e-005		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	0.6795	0.6795	6.5000e-004	0.0000	0.6959
Total	**0.7369**	**4.7900e-003**	**0.4158**	**2.0000e-005**		**2.3000e-003**	**2.3000e-003**		**2.3000e-003**	**2.3000e-003**	**0.0000**	**0.6795**	**0.6795**	**6.5000e-004**	**0.0000**	**0.6959**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.1624	4.3200e-003	2.4000e-003	14.9866
Unmitigated	17.7030	5.4000e-003	3.0000e-003	18.7332

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 12.7489	10.1130	5.9000e-004	1.2000e-004	10.1639
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.64863 / 2.30022	7.5901	4.8100e-003	2.8800e-003	8.5694
Total		**17.7031**	**5.4000e-003**	**3.0000e-003**	**18.7332**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.1991	8.0904	4.7000e-004	1.0000e-004	8.1311
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.9189 / 1.84018	6.0721	3.8500e-003	2.3100e-003	6.8555
Total		**14.1624**	**4.3200e-003**	**2.4100e-003**	**14.9866**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.0707	0.2019	0.0000	9.1171
Unmitigated	16.2829	0.8074	0.0000	36.4683

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.92	0.1911	9.4700e-003	0.0000	0.4279
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	77.49	16.0918	0.7979	0.0000	36.0404
Total		**16.2829**	**0.8074**	**0.0000**	**36.4683**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.23	0.0478	2.3700e-003	0.0000	0.1070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	19.3725	4.0230	0.1995	0.0000	9.0101
Total		**4.0707**	**0.2019**	**0.0000**	**9.1171**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:30 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5144	50.1483	23.6438	0.0468	18.3650	2.4073	20.7723	10.0063	2.2153	12.2217	0.0000	4,733.9078	4,733.9078	1.2830	0.0000	4,765.9827
2020	4.6191	54.7951	33.5033	0.0807	18.9765	2.2092	21.1857	10.1564	2.0329	12.1893	0.0000	8,208.7218	8,208.7218	2.0395	0.0000	8,232.6125
2021	75.9010	32.1908	28.7862	0.0796	3.0967	1.0137	4.1104	0.8400	0.9535	1.7935	0.0000	8,110.2504	8,110.2504	0.9410	0.0000	8,133.7742
2022	75.8722	29.5849	27.5328	0.0786	3.0967	0.8587	3.9553	0.8400	0.8082	1.6482	0.0000	8,010.9126	8,010.9126	0.9337	0.0000	8,034.2545
Maximum	**75.9010**	**54.7951**	**33.5033**	**0.0807**	**18.9765**	**2.4073**	**21.1857**	**10.1564**	**2.2153**	**12.2217**	**0.0000**	**8,208.7218**	**8,208.7218**	**2.0395**	**0.0000**	**8,232.6125**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5144	50.1483	23.6438	0.0468	7.3209	2.4073	9.7282	3.9450	2.2153	6.1604	0.0000	4,733.9078	4,733.9078	1.2830	0.0000	4,765.9827
2020	4.6191	54.7951	33.5033	0.0807	7.9324	2.2092	10.1416	4.0951	2.0329	6.1280	0.0000	8,208.7218	8,208.7218	2.0395	0.0000	8,232.6125
2021	75.9010	32.1908	28.7862	0.0796	3.0967	1.0137	4.1104	0.8400	0.9535	1.7935	0.0000	8,110.2504	8,110.2504	0.9410	0.0000	8,133.7742
2022	75.8722	29.5849	27.5328	0.0786	3.0967	0.8587	3.9553	0.8400	0.8082	1.6482	0.0000	8,010.9126	8,010.9126	0.9337	0.0000	8,034.2545
Maximum	**75.9010**	**54.7951**	**33.5033**	**0.0807**	**7.9324**	**2.4073**	**10.1416**	**4.0951**	**2.2153**	**6.1604**	**0.0000**	**8,208.7218**	**8,208.7218**	**2.0395**	**0.0000**	**8,232.6125**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.74**	**0.00**	**44.16**	**55.50**	**0.00**	**43.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Total	**4.9442**	**3.1127**	**12.1752**	**0.0249**	**2.1708**	**0.0775**	**2.2482**	**0.5817**	**0.0762**	**0.6579**	**0.0000**	**2,778.0156**	**2,778.0156**	**0.1220**	**9.6200e-003**	**2,783.9304**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Total	**4.9442**	**3.1127**	**12.1752**	**0.0249**	**2.1708**	**0.0775**	**2.2482**	**0.5817**	**0.0762**	**0.6579**	**0.0000**	**2,778.0156**	**2,778.0156**	**0.1220**	**9.6200e-003**	**2,783.9304**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.1051**	**2.3904**	**20.4954**	**9.9366**	**2.1991**	**12.1357**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1175	4.5260	1.1043	7.7700e-003	0.1462	0.0162	0.1624	0.0396	0.0155	0.0551		861.8888	861.8888	0.0874		864.0728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.1794**	**4.5756**	**1.5808**	**8.8300e-003**	**0.2599**	**0.0170**	**0.2769**	**0.0698**	**0.0162**	**0.0860**		**967.4549**	**967.4549**	**0.0913**		**969.7382**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0610**	**2.3904**	**9.4513**	**3.8753**	**2.1991**	**6.0744**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1175	4.5260	1.1043	7.7700e-003	0.1462	0.0162	0.1624	0.0396	0.0155	0.0551		861.8888	861.8888	0.0874		864.0728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.1794**	**4.5756**	**1.5808**	**8.8300e-003**	**0.2599**	**0.0170**	**0.2769**	**0.0698**	**0.0162**	**0.0860**		**967.4549**	**967.4549**	**0.0913**		**969.7382**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.1051**	**2.1974**	**20.3025**	**9.9366**	**2.0216**	**11.9582**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0999	4.2648	1.0091	7.7100e-003	0.7578	0.0111	0.7688	0.1897	0.0106	0.2003		858.8476	858.8476	0.0874		861.0332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.1561**	**4.3084**	**1.4309**	**8.7400e-003**	**0.8714**	**0.0118**	**0.8832**	**0.2199**	**0.0113**	**0.2311**		**961.1648**	**961.1648**	**0.0908**		**963.4360**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0610**	**2.1974**	**9.2584**	**3.8753**	**2.0216**	**5.8969**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0999	4.2648	1.0091	7.7100e-003	0.7578	0.0111	0.7688	0.1897	0.0106	0.2003		858.8476	858.8476	0.0874		861.0332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.1561**	**4.3084**	**1.4309**	**8.7400e-003**	**0.8714**	**0.0118**	**0.8832**	**0.2199**	**0.0113**	**0.2311**		**961.1648**	**961.1648**	**0.0908**		**963.4360**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7147	0.0000	8.7147	3.6028	0.0000	3.6028			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.7147**	**2.1739**	**10.8886**	**3.6028**	**2.0000**	**5.6028**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.5491	1.0764	8.2300e-003	0.1393	0.0118	0.1511	0.0382	0.0113	0.0495		916.1041	916.1041	0.0933		918.4354
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.1690**	**4.5976**	**1.5450**	**9.3700e-003**	**0.2656**	**0.0126**	**0.2782**	**0.0717**	**0.0121**	**0.0837**		**1,029.7899**	**1,029.7899**	**0.0971**		**1,032.2163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3988	0.0000	3.3988	1.4051	0.0000	1.4051			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3988**	**2.1739**	**5.5727**	**1.4051**	**2.0000**	**3.4051**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.5491	1.0764	8.2300e-003	0.1393	0.0118	0.1511	0.0382	0.0113	0.0495		916.1041	916.1041	0.0933		918.4354
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.1690**	**4.5976**	**1.5450**	**9.3700e-003**	**0.2656**	**0.0126**	**0.2782**	**0.0717**	**0.0121**	**0.0837**		**1,029.7899**	**1,029.7899**	**0.0971**		**1,032.2163**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5448	15.2321	5.1273	0.0332	0.8232	0.0820	0.9051	0.2369	0.0784	0.3153		3,609.3141	3,609.3141	0.2643		3,615.9213
Worker	1.1254	0.8723	8.4359	0.0206	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		2,046.3447	2,046.3447	0.0685		2,048.0567
Total	**1.6702**	**16.1045**	**13.5632**	**0.0538**	**3.0967**	**0.0965**	**3.1932**	**0.8400**	**0.0918**	**0.9318**		**5,655.6588**	**5,655.6588**	**0.3328**		**5,663.9780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5448	15.2321	5.1273	0.0332	0.8232	0.0820	0.9051	0.2369	0.0784	0.3153		3,609.3141	3,609.3141	0.2643		3,615.9213
Worker	1.1254	0.8723	8.4359	0.0206	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		2,046.3447	2,046.3447	0.0685		2,048.0567
Total	**1.6702**	**16.1045**	**13.5632**	**0.0538**	**3.0967**	**0.0965**	**3.1932**	**0.8400**	**0.0918**	**0.9318**		**5,655.6588**	**5,655.6588**	**0.3328**		**5,663.9780**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2086	0.1554	1.5290	3.9700e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		395.3692	395.3692	0.0122		395.6731
Total	**0.2086**	**0.1554**	**1.5290**	**3.9700e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**395.3692**	**395.3692**	**0.0122**		**395.6731**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2086	0.1554	1.5290	3.9700e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		395.3692	395.3692	0.0122		395.6731
Total	**0.2086**	**0.1554**	**1.5290**	**3.9700e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**395.3692**	**395.3692**	**0.0122**		**395.6731**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4501	13.9817	4.5661	0.0329	0.8231	0.0411	0.8642	0.2368	0.0393	0.2761		3,580.0403	3,580.0403	0.2642		3,586.6445
Worker	1.0431	0.7770	7.6449	0.0199	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,976.8462	1,976.8462	0.0608		1,978.3655
Total	**1.4931**	**14.7587**	**12.2110**	**0.0527**	**3.0967**	**0.0551**	**3.1518**	**0.8400**	**0.0522**	**0.8922**		**5,556.8865**	**5,556.8865**	**0.3249**		**5,565.0099**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4140	13.2749	4.2038	0.0325	0.8231	0.0360	0.8591	0.2368	0.0345	0.2713		3,550.2527	3,550.2527	0.2676		3,556.9428
Worker	0.9712	0.6944	6.9656	0.0191	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,906.3263	1,906.3263	0.0541		1,907.6794
Total	**1.3852**	**13.9692**	**11.1694**	**0.0516**	**3.0967**	**0.0497**	**3.1463**	**0.8400**	**0.0470**	**0.8870**		**5,456.5790**	**5,456.5790**	**0.3217**		**5,464.6223**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4140	13.2749	4.2038	0.0325	0.8231	0.0360	0.8591	0.2368	0.0345	0.2713		3,550.2527	3,550.2527	0.2676		3,556.9428
Worker	0.9712	0.6944	6.9656	0.0191	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,906.3263	1,906.3263	0.0541		1,907.6794
Total	**1.3852**	**13.9692**	**11.1694**	**0.0516**	**3.0967**	**0.0497**	**3.1463**	**0.8400**	**0.0470**	**0.8870**		**5,456.5790**	**5,456.5790**	**0.3217**		**5,464.6223**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1942	0.1389	1.3931	3.8300e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		381.2653	381.2653	0.0108		381.5359
Total	**0.1942**	**0.1389**	**1.3931**	**3.8300e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**381.2653**	**381.2653**	**0.0108**		**381.5359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1942	0.1389	1.3931	3.8300e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		381.2653	381.2653	0.0108		381.5359
Total	**0.1942**	**0.1389**	**1.3931**	**3.8300e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**381.2653**	**381.2653**	**0.0108**		**381.5359**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664
Unmitigated	0.7878	2.6485	7.3803	0.0221	2.1708	0.0186	2.1894	0.5817	0.0174	0.5991		2,245.0689	2,245.0689	0.1039		2,247.6664

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
NaturalGas Unmitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4459.3	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.4593	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Unmitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:34 PM

Rancho Maria - Hidden Canyon

Santa Barbara County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	56.00	Dwelling Unit	23.20	162,400.00	165

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Hidden Canyon neighborhood consists of 56 single family homes on 23.2 acres. 7.9 acres of new roads to be built and 10.7 acres of interconnected open space. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - Project construction schedule is based on information provided by the project applicant where possible, otherwise CalEEMod default values were utilzied.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced between the two neighborhoods.

Grading - Export of 84,367 CY of earthwork material to the Willow Creek Neighborhood.

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialExported	0.00	42,184.00
tblGrading	MaterialExported	0.00	42,184.00
tblLandUse	LandUseSquareFeet	100,800.00	162,400.00
tblLandUse	LotAcreage	18.18	23.20
tblLandUse	Population	152.00	165.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	67.65	77.49
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5302	50.0948	23.8202	0.0465	18.3650	2.4086	20.7736	10.0063	2.2165	12.2228	0.0000	4,697.3764	4,697.3764	1.2882	0.0000	4,729.5809
2020	4.6342	54.7382	33.6671	0.0795	18.9765	2.2101	21.1866	10.1564	2.0338	12.1902	0.0000	8,077.2231	8,077.2231	2.0447	0.0000	8,101.4281
2021	75.9278	32.2473	29.5258	0.0784	3.0967	1.0158	4.1125	0.8400	0.9555	1.7955	0.0000	7,980.0466	7,980.0466	0.9533	0.0000	8,003.8796
2022	75.8976	29.6224	28.1975	0.0774	3.0967	0.8606	3.9573	0.8400	0.8100	1.6500	0.0000	7,881.8994	7,881.8994	0.9462	0.0000	7,905.5533
Maximum	**75.9278**	**54.7382**	**33.6671**	**0.0795**	**18.9765**	**2.4086**	**21.1866**	**10.1564**	**2.2165**	**12.2228**	**0.0000**	**8,077.2231**	**8,077.2231**	**2.0447**	**0.0000**	**8,101.4281**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.5302	50.0948	23.8202	0.0465	7.3209	2.4086	9.7295	3.9450	2.2165	6.1615	0.0000	4,697.3764	4,697.3764	1.2882	0.0000	4,729.5809
2020	4.6342	54.7382	33.6671	0.0795	7.9324	2.2101	10.1425	4.0951	2.0338	6.1289	0.0000	8,077.2231	8,077.2231	2.0447	0.0000	8,101.4281
2021	75.9278	32.2473	29.5258	0.0784	3.0967	1.0158	4.1125	0.8400	0.9555	1.7955	0.0000	7,980.0466	7,980.0466	0.9533	0.0000	8,003.8796
2022	75.8976	29.6224	28.1975	0.0774	3.0967	0.8606	3.9573	0.8400	0.8100	1.6500	0.0000	7,881.8994	7,881.8994	0.9462	0.0000	7,905.5533
Maximum	**75.9278**	**54.7382**	**33.6671**	**0.0795**	**7.9324**	**2.4086**	**10.1425**	**4.0951**	**2.2165**	**6.1615**	**0.0000**	**8,077.2231**	**8,077.2231**	**2.0447**	**0.0000**	**8,101.4281**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.74**	**0.00**	**44.15**	**55.50**	**0.00**	**43.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Total	**4.9263**	**3.1991**	**12.6958**	**0.0244**	**2.1708**	**0.0776**	**2.2483**	**0.5817**	**0.0763**	**0.6580**	**0.0000**	**2,727.6339**	**2,727.6339**	**0.1254**	**9.6200e-003**	**2,733.6359**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Energy	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Mobile	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Total	**4.9263**	**3.1991**	**12.6958**	**0.0244**	**2.1708**	**0.0776**	**2.2483**	**0.5817**	**0.0763**	**0.6580**	**0.0000**	**2,727.6339**	**2,727.6339**	**0.1254**	**9.6200e-003**	**2,733.6359**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 7.9

Residential Indoor: 328,860; Residential Outdoor: 109,620; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,273.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	360.00	139.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	72.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.1051**	**2.3904**	**20.4954**	**9.9366**	**2.1991**	**12.1357**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1254	4.4653	1.2602	7.4700e-003	0.1462	0.0175	0.1637	0.0396	0.0167	0.0563		827.7967	827.7967	0.0925		830.1092
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1952**	**4.5221**	**1.7572**	**8.5100e-003**	**0.2599**	**0.0182**	**0.2781**	**0.0698**	**0.0174**	**0.0872**		**930.9235**	**930.9235**	**0.0965**		**933.3363**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0610**	**2.3904**	**9.4513**	**3.8753**	**2.1991**	**6.0744**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1254	4.4653	1.2602	7.4700e-003	0.1462	0.0175	0.1637	0.0396	0.0167	0.0563		827.7967	827.7967	0.0925		830.1092
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1952**	**4.5221**	**1.7572**	**8.5100e-003**	**0.2599**	**0.0182**	**0.2781**	**0.0698**	**0.0174**	**0.0872**		**930.9235**	**930.9235**	**0.0965**		**933.3363**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1051	0.0000	18.1051	9.9366	0.0000	9.9366			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.1051**	**2.1974**	**20.3025**	**9.9366**	**2.0216**	**11.9582**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.2049	1.1456	7.4000e-003	0.7578	0.0120	0.7697	0.1897	0.0115	0.2012		823.8736	823.8736	0.0923		826.1818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.1700**	**4.2548**	**1.5837**	**8.4000e-003**	**0.8714**	**0.0127**	**0.8841**	**0.2199**	**0.0121**	**0.2320**		**923.8245**	**923.8245**	**0.0958**		**926.2186**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0610	0.0000	7.0610	3.8753	0.0000	3.8753			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0610**	**2.1974**	**9.2584**	**3.8753**	**2.0216**	**5.8969**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1065	4.2049	1.1456	7.4000e-003	0.7578	0.0120	0.7697	0.1897	0.0115	0.2012		823.8736	823.8736	0.0923		826.1818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.1700**	**4.2548**	**1.5837**	**8.4000e-003**	**0.8714**	**0.0127**	**0.8841**	**0.2199**	**0.0121**	**0.2320**		**923.8245**	**923.8245**	**0.0958**		**926.2186**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7147	0.0000	8.7147	3.6028	0.0000	3.6028			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.7147**	**2.1739**	**10.8886**	**3.6028**	**2.0000**	**5.6028**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1136	4.4852	1.2220	7.8900e-003	0.1393	0.0128	0.1521	0.0382	0.0122	0.0504		878.7985	878.7985	0.0985		881.2605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1841**	**4.5406**	**1.7088**	**9.0100e-003**	**0.2656**	**0.0136**	**0.2792**	**0.0717**	**0.0130**	**0.0846**		**989.8551**	**989.8551**	**0.1023**		**992.4126**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3988	0.0000	3.3988	1.4051	0.0000	1.4051			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3988**	**2.1739**	**5.5727**	**1.4051**	**2.0000**	**3.4051**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1136	4.4852	1.2220	7.8900e-003	0.1393	0.0128	0.1521	0.0382	0.0122	0.0504		878.7985	878.7985	0.0985		881.2605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1841**	**4.5406**	**1.7088**	**9.0100e-003**	**0.2656**	**0.0136**	**0.2792**	**0.0717**	**0.0130**	**0.0846**		**989.8551**	**989.8551**	**0.1023**		**992.4126**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5745	15.1916	5.6317	0.0325	0.8232	0.0844	0.9075	0.2369	0.0807	0.3175		3,525.1417	3,525.1417	0.2766		3,532.0563
Worker	1.2692	0.9980	8.7619	0.0201	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		1,999.0183	1,999.0183	0.0688		2,000.7374
Total	**1.8437**	**16.1896**	**14.3936**	**0.0526**	**3.0967**	**0.0988**	**3.1956**	**0.8400**	**0.0940**	**0.9341**		**5,524.1600**	**5,524.1600**	**0.3453**		**5,532.7937**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5745	15.1916	5.6317	0.0325	0.8232	0.0844	0.9075	0.2369	0.0807	0.3175		3,525.1417	3,525.1417	0.2766		3,532.0563
Worker	1.2692	0.9980	8.7619	0.0201	2.2736	0.0145	2.2881	0.6032	0.0134	0.6165		1,999.0183	1,999.0183	0.0688		2,000.7374
Total	**1.8437**	**16.1896**	**14.3936**	**0.0526**	**3.0967**	**0.0988**	**3.1956**	**0.8400**	**0.0940**	**0.9341**		**5,524.1600**	**5,524.1600**	**0.3453**		**5,532.7937**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2905**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2355	0.1778	1.5846	3.8800e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		386.2265	386.2265	0.0122		386.5309
Total	**0.2355**	**0.1778**	**1.5846**	**3.8800e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**386.2265**	**386.2265**	**0.0122**		**386.5309**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**75.6923**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2355	0.1778	1.5846	3.8800e-003	0.4547	2.8000e-003	0.4575	0.1206	2.5800e-003	0.1232		386.2265	386.2265	0.0122		386.5309
Total	**0.2355**	**0.1778**	**1.5846**	**3.8800e-003**	**0.4547**	**2.8000e-003**	**0.4575**	**0.1206**	**2.5800e-003**	**0.1232**		**386.2265**	**386.2265**	**0.0122**		**386.5309**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4770	13.9264	5.0278	0.0321	0.8231	0.0432	0.8663	0.2368	0.0413	0.2781		3,495.5505	3,495.5505	0.2764		3,502.4607
Worker	1.1773	0.8888	7.9228	0.0194	2.2736	0.0140	2.2876	0.6032	0.0129	0.6161		1,931.1323	1,931.1323	0.0609		1,932.6546
Total	**1.6542**	**14.8152**	**12.9506**	**0.0515**	**3.0967**	**0.0572**	**3.1539**	**0.8400**	**0.0542**	**0.8942**		**5,426.6827**	**5,426.6827**	**0.3373**		**5,435.1153**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4388	13.2126	4.6337	0.0317	0.8231	0.0380	0.8611	0.2368	0.0363	0.2732		3,465.3048	3,465.3048	0.2801		3,472.3076
Worker	1.0981	0.7942	7.2004	0.0187	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,862.2610	1,862.2610	0.0541		1,863.6136
Total	**1.5369**	**14.0067**	**11.8341**	**0.0505**	**3.0967**	**0.0516**	**3.1483**	**0.8400**	**0.0489**	**0.8889**		**5,327.5658**	**5,327.5658**	**0.3342**		**5,335.9211**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4388	13.2126	4.6337	0.0317	0.8231	0.0380	0.8611	0.2368	0.0363	0.2732		3,465.3048	3,465.3048	0.2801		3,472.3076
Worker	1.0981	0.7942	7.2004	0.0187	2.2736	0.0136	2.2872	0.6032	0.0125	0.6157		1,862.2610	1,862.2610	0.0541		1,863.6136
Total	**1.5369**	**14.0067**	**11.8341**	**0.0505**	**3.0967**	**0.0516**	**3.1483**	**0.8400**	**0.0489**	**0.8889**		**5,327.5658**	**5,327.5658**	**0.3342**		**5,335.9211**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0349					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1377**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2196	0.1588	1.4401	3.7400e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		372.4522	372.4522	0.0108		372.7227
Total	**0.2196**	**0.1588**	**1.4401**	**3.7400e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**372.4522**	**372.4522**	**0.0108**		**372.7227**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	75.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**75.6780**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2196	0.1588	1.4401	3.7400e-003	0.4547	2.7200e-003	0.4574	0.1206	2.5100e-003	0.1231		372.4522	372.4522	0.0108		372.7227
Total	**0.2196**	**0.1588**	**1.4401**	**3.7400e-003**	**0.4547**	**2.7200e-003**	**0.4574**	**0.1206**	**2.5100e-003**	**0.1231**		**372.4522**	**372.4522**	**0.0108**		**372.7227**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718
Unmitigated	0.7699	2.7350	7.9009	0.0216	2.1708	0.0187	2.1895	0.5817	0.0175	0.5992		2,194.6872	2,194.6872	0.1074		2,197.3718

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	528.64	550.48	478.80	971,857	971,857
Total	528.64	550.48	478.80	971,857	971,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
NaturalGas Unmitigated	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4459.3	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.4593	0.0481	0.4110	0.1749	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.6237	524.6237	0.0101	9.6200e-003	527.7413
Total		**0.0481**	**0.4110**	**0.1749**	**2.6200e-003**		**0.0332**	**0.0332**		**0.0332**	**0.0332**		**524.6237**	**524.6237**	**0.0101**	**9.6200e-003**	**527.7413**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228
Unmitigated	4.1083	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256	0.0000	8.3230	8.3230	7.9900e-003	0.0000	8.5228

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6213					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1390	0.0532	4.6200	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3230	8.3230	7.9900e-003		8.5228
Total	**4.1083**	**0.0532**	**4.6200**	**2.4000e-004**		**0.0256**	**0.0256**		**0.0256**	**0.0256**	**0.0000**	**8.3230**	**8.3230**	**7.9900e-003**	**0.0000**	**8.5228**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:39 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).
Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.
Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3372	3.5786	1.7423	3.1500e-003	1.3861	0.1821	1.5682	0.7581	0.1676	0.9257	0.0000	285.5310	285.5310	0.0844	0.0000	287.6414
2020	0.4704	5.2102	3.3349	6.8700e-003	0.9891	0.2202	1.2092	0.4309	0.2029	0.6338	0.0000	611.0270	611.0270	0.1715	0.0000	615.3136
2021	1.3496	3.8037	3.4663	9.2900e-003	0.3568	0.1202	0.4769	0.0969	0.1129	0.2099	0.0000	857.1664	857.1664	0.1031	0.0000	859.7443
2022	1.3118	3.4738	3.3013	9.1200e-003	0.3552	0.1013	0.4565	0.0965	0.0953	0.1918	0.0000	843.0057	843.0057	0.1019	0.0000	845.5535
2023	1.0051	3.1333	3.2368	9.1800e-003	0.3633	0.0884	0.4517	0.0987	0.0831	0.1818	0.0000	849.1891	849.1891	0.1022	0.0000	851.7434
2024	0.2812	4.0500e-003	9.1600e-003	2.0000e-005	1.4100e-003	1.9000e-004	1.6000e-003	3.7000e-004	1.9000e-004	5.6000e-004	0.0000	1.7574	1.7574	7.0000e-005	0.0000	1.7591
Maximum	**1.3496**	**5.2102**	**3.4663**	**9.2900e-003**	**1.3861**	**0.2202**	**1.5682**	**0.7581**	**0.2029**	**0.9257**	**0.0000**	**857.1664**	**857.1664**	**0.1715**	**0.0000**	**859.7443**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3372	3.5786	1.7423	3.1500e-003	0.5479	0.1821	0.7300	0.2976	0.1676	0.4652	0.0000	285.5306	285.5306	0.0844	0.0000	287.6411
2020	0.4704	5.2102	3.3349	6.8700e-003	0.4190	0.2202	0.6392	0.1770	0.2029	0.3799	0.0000	611.0264	611.0264	0.1715	0.0000	615.3129
2021	1.3496	3.8037	3.4663	9.2900e-003	0.3568	0.1201	0.4769	0.0969	0.1129	0.2099	0.0000	857.1661	857.1661	0.1031	0.0000	859.7439
2022	1.3118	3.4738	3.3013	9.1200e-003	0.3552	0.1013	0.4565	0.0965	0.0953	0.1918	0.0000	843.0054	843.0054	0.1019	0.0000	845.5532
2023	1.0051	3.1333	3.2368	9.1800e-003	0.3633	0.0884	0.4517	0.0987	0.0831	0.1818	0.0000	849.1888	849.1888	0.1022	0.0000	851.7430
2024	0.2812	4.0500e-003	9.1600e-003	2.0000e-005	1.4100e-003	1.9000e-004	1.6000e-003	3.7000e-004	1.9000e-004	5.6000e-004	0.0000	1.7574	1.7574	7.0000e-005	0.0000	1.7591
Maximum	**1.3496**	**5.2102**	**3.4663**	**9.2900e-003**	**0.5479**	**0.2202**	**0.7300**	**0.2976**	**0.2029**	**0.4652**	**0.0000**	**857.1661**	**857.1661**	**0.1715**	**0.0000**	**859.7439**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**40.80**	**0.00**	**33.82**	**48.22**	**0.00**	**33.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Energy	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	304.6218	304.6218	0.0123	4.5400e-003	306.2813
Mobile	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Waste						0.0000	0.0000		0.0000	0.0000	25.9891	0.0000	25.9891	1.2887	0.0000	58.2069
Water						0.0000	0.0000		0.0000	0.0000	2.0746	20.2367	22.3113	8.3200e-003	4.7500e-003	23.9361
Total	**1.1631**	**0.8924**	**2.8469**	**6.8400e-003**	**0.5921**	**0.0187**	**0.6107**	**0.1589**	**0.0183**	**0.1773**	**28.0637**	**882.8583**	**910.9220**	**1.3370**	**9.2900e-003**	**947.1169**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Energy	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	304.6218	304.6218	0.0123	4.5400e-003	306.2813
Mobile	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Waste						0.0000	0.0000		0.0000	0.0000	6.4973	0.0000	6.4973	0.3222	0.0000	14.5517
Water						0.0000	0.0000		0.0000	0.0000	1.6597	16.1893	17.8490	6.6500e-003	3.8000e-003	19.1489
Total	**1.1631**	**0.8924**	**2.8469**	**6.8400e-003**	**0.5921**	**0.0187**	**0.6107**	**0.1589**	**0.0183**	**0.1773**	**8.1570**	**878.8109**	**886.9679**	**0.3688**	**8.3400e-003**	**898.6744**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**70.93**	**0.46**	**2.63**	**72.42**	**10.23**	**5.11**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3741	0.0000	1.3741	0.7549	0.0000	0.7549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6820	259.6820	0.0822	0.0000	261.7360
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**1.3741**	**0.1817**	**1.5558**	**0.7549**	**0.1671**	**0.9220**	**0.0000**	**259.6820**	**259.6820**	**0.0822**	**0.0000**	**261.7360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9500e-003	0.1109	0.0287	1.9000e-004	3.4900e-003	4.1000e-004	3.9000e-003	9.5000e-004	3.9000e-004	1.3400e-003	0.0000	18.7290	18.7290	1.9800e-003	0.0000	18.7785
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**7.7800e-003**	**0.1151**	**0.0655**	**2.7000e-004**	**0.0119**	**4.7000e-004**	**0.0124**	**3.2000e-003**	**4.4000e-004**	**3.6400e-003**	**0.0000**	**25.8489**	**25.8489**	**2.2500e-003**	**0.0000**	**25.9054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5359	0.0000	0.5359	0.2944	0.0000	0.2944	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3295	3.4635	1.6768	2.8900e-003		0.1817	0.1817		0.1671	0.1671	0.0000	259.6817	259.6817	0.0822	0.0000	261.7357
Total	**0.3295**	**3.4635**	**1.6768**	**2.8900e-003**	**0.5359**	**0.1817**	**0.7176**	**0.2944**	**0.1671**	**0.4615**	**0.0000**	**259.6817**	**259.6817**	**0.0822**	**0.0000**	**261.7357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9500e-003	0.1109	0.0287	1.9000e-004	3.4900e-003	4.1000e-004	3.9000e-003	9.5000e-004	3.9000e-004	1.3400e-003	0.0000	18.7290	18.7290	1.9800e-003	0.0000	18.7785
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8300e-003	4.2200e-003	0.0368	8.0000e-005	8.4500e-003	6.0000e-005	8.5100e-003	2.2500e-003	5.0000e-005	2.3000e-003	0.0000	7.1200	7.1200	2.7000e-004	0.0000	7.1268
Total	**7.7800e-003**	**0.1151**	**0.0655**	**2.7000e-004**	**0.0119**	**4.7000e-004**	**0.0124**	**3.2000e-003**	**4.4000e-004**	**3.6400e-003**	**0.0000**	**25.8489**	**25.8489**	**2.2500e-003**	**0.0000**	**25.9054**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2179	0.0000	0.2179	0.1193	0.0000	0.1193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4412
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2179**	**0.0264**	**0.2443**	**0.1193**	**0.0243**	**0.1436**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4412**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0165	4.1300e-003	3.0000e-005	2.8400e-003	4.0000e-005	2.8900e-003	7.1000e-004	4.0000e-005	7.5000e-004	0.0000	2.9453	2.9453	3.1000e-004	0.0000	2.9531
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.0900e-003**	**0.0171**	**9.2600e-003**	**4.0000e-005**	**4.1700e-003**	**5.0000e-005**	**4.2300e-003**	**1.0600e-003**	**5.0000e-005**	**1.1100e-003**	**0.0000**	**4.0349**	**4.0349**	**3.5000e-004**	**0.0000**	**4.0436**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0850	0.0000	0.0850	0.0465	0.0000	0.0465	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4411
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.0850**	**0.0264**	**0.1114**	**0.0465**	**0.0243**	**0.0708**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4411**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0165	4.1300e-003	3.0000e-005	2.8400e-003	4.0000e-005	2.8900e-003	7.1000e-004	4.0000e-005	7.5000e-004	0.0000	2.9453	2.9453	3.1000e-004	0.0000	2.9531
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.9000e-004	5.1300e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3400e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0896	1.0896	4.0000e-005	0.0000	1.0905
Total	**1.0900e-003**	**0.0171**	**9.2600e-003**	**4.0000e-005**	**4.1700e-003**	**5.0000e-005**	**4.2300e-003**	**1.0600e-003**	**5.0000e-005**	**1.1100e-003**	**0.0000**	**4.0349**	**4.0349**	**3.5000e-004**	**0.0000**	**4.0436**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7166	0.0000	0.7166	0.2969	0.0000	0.2969	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4954	449.4954	0.1454	0.0000	453.1298
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.7166**	**0.1794**	**0.8960**	**0.2969**	**0.1650**	**0.4619**	**0.0000**	**449.4954**	**449.4954**	**0.1454**	**0.0000**	**453.1298**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-003	0.1209	0.0303	2.1000e-004	3.6100e-003	3.2000e-004	3.9400e-003	9.9000e-004	3.1000e-004	1.3000e-003	0.0000	21.5989	21.5989	2.2900e-003	0.0000	21.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**8.2000e-003**	**0.1253**	**0.0694**	**3.0000e-004**	**0.0138**	**3.9000e-004**	**0.0142**	**3.7000e-003**	**3.7000e-004**	**4.0700e-003**	**0.0000**	**29.9221**	**29.9221**	**2.5700e-003**	**0.0000**	**29.9865**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2795	0.0000	0.2795	0.1158	0.0000	0.1158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3671	4.1413	2.6366	5.1200e-003		0.1794	0.1794		0.1650	0.1650	0.0000	449.4949	449.4949	0.1454	0.0000	453.1293
Total	**0.3671**	**4.1413**	**2.6366**	**5.1200e-003**	**0.2795**	**0.1794**	**0.4588**	**0.1158**	**0.1650**	**0.2808**	**0.0000**	**449.4949**	**449.4949**	**0.1454**	**0.0000**	**453.1293**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-003	0.1209	0.0303	2.1000e-004	3.6100e-003	3.2000e-004	3.9400e-003	9.9000e-004	3.1000e-004	1.3000e-003	0.0000	21.5989	21.5989	2.2900e-003	0.0000	21.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-003	4.4700e-003	0.0392	9.0000e-005	0.0102	7.0000e-005	0.0103	2.7100e-003	6.0000e-005	2.7700e-003	0.0000	8.3232	8.3232	2.8000e-004	0.0000	8.3303
Total	**8.2000e-003**	**0.1253**	**0.0694**	**3.0000e-004**	**0.0138**	**3.9000e-004**	**0.0142**	**3.7000e-003**	**3.7000e-004**	**4.0700e-003**	**0.0000**	**29.9221**	**29.9221**	**2.5700e-003**	**0.0000**	**29.9865**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6352	26.6352	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6352**	**26.6352**	**6.5000e-003**	**0.0000**	**26.7976**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-003	0.1851	0.0646	3.9000e-004	9.7000e-003	1.0000e-003	0.0107	2.8000e-003	9.5000e-004	3.7500e-003	0.0000	38.8947	38.8947	2.9400e-003	0.0000	38.9682
Worker	0.0140	0.0118	0.1032	2.4000e-004	0.0269	1.7000e-004	0.0270	7.1300e-003	1.6000e-004	7.3000e-003	0.0000	21.9279	21.9279	7.5000e-004	0.0000	21.9466
Total	**0.0207**	**0.1969**	**0.1678**	**6.3000e-004**	**0.0366**	**1.1700e-003**	**0.0377**	**9.9300e-003**	**1.1100e-003**	**0.0111**	**0.0000**	**60.8227**	**60.8227**	**3.6900e-003**	**0.0000**	**60.9148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2206	0.1938	3.1000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	26.6351	26.6351	6.5000e-003	0.0000	26.7976
Total	**0.0244**	**0.2206**	**0.1938**	**3.1000e-004**		**0.0129**	**0.0129**		**0.0121**	**0.0121**	**0.0000**	**26.6351**	**26.6351**	**6.5000e-003**	**0.0000**	**26.7976**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-003	0.1851	0.0646	3.9000e-004	9.7000e-003	1.0000e-003	0.0107	2.8000e-003	9.5000e-004	3.7500e-003	0.0000	38.8947	38.8947	2.9400e-003	0.0000	38.9682
Worker	0.0140	0.0118	0.1032	2.4000e-004	0.0269	1.7000e-004	0.0270	7.1300e-003	1.6000e-004	7.3000e-003	0.0000	21.9279	21.9279	7.5000e-004	0.0000	21.9466
Total	**0.0207**	**0.1969**	**0.1678**	**6.3000e-004**	**0.0366**	**1.1700e-003**	**0.0377**	**9.9300e-003**	**1.1100e-003**	**0.0111**	**0.0000**	**60.8227**	**60.8227**	**3.6900e-003**	**0.0000**	**60.9148**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7446	239.7446	0.0578	0.0000	241.1906
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7446**	**239.7446**	**0.0578**	**0.0000**	**241.1906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0499	1.5266	0.5185	3.5100e-003	0.0873	4.5300e-003	0.0918	0.0252	4.3300e-003	0.0295	0.0000	347.1723	347.1723	0.0264	0.0000	347.8328
Worker	0.1165	0.0945	0.8401	2.1100e-003	0.2416	1.5200e-003	0.2432	0.0642	1.4000e-003	0.0656	0.0000	190.6493	190.6493	5.9600e-003	0.0000	190.7984
Total	**0.1664**	**1.6211**	**1.3586**	**5.6200e-003**	**0.3289**	**6.0500e-003**	**0.3350**	**0.0894**	**5.7300e-003**	**0.0951**	**0.0000**	**537.8216**	**537.8216**	**0.0324**	**0.0000**	**538.6311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1968	1.8042	1.7155	2.7900e-003		0.0992	0.0992		0.0933	0.0933	0.0000	239.7443	239.7443	0.0578	0.0000	241.1903
Total	**0.1968**	**1.8042**	**1.7155**	**2.7900e-003**		**0.0992**	**0.0992**		**0.0933**	**0.0933**	**0.0000**	**239.7443**	**239.7443**	**0.0578**	**0.0000**	**241.1903**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0499	1.5266	0.5185	3.5100e-003	0.0873	4.5300e-003	0.0918	0.0252	4.3300e-003	0.0295	0.0000	347.1723	347.1723	0.0264	0.0000	347.8328
Worker	0.1165	0.0945	0.8401	2.1100e-003	0.2416	1.5200e-003	0.2432	0.0642	1.4000e-003	0.0656	0.0000	190.6493	190.6493	5.9600e-003	0.0000	190.7984
Total	**0.1664**	**1.6211**	**1.3586**	**5.6200e-003**	**0.3289**	**6.0500e-003**	**0.3350**	**0.0894**	**5.7300e-003**	**0.0951**	**0.0000**	**537.8216**	**537.8216**	**0.0324**	**0.0000**	**538.6311**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0233**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0233**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.6000e-004	3.2200e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7310	0.7310	2.0000e-005	0.0000	0.7315
Total	**4.5000e-004**	**3.6000e-004**	**3.2200e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7310**	**0.7310**	**2.0000e-005**	**0.0000**	**0.7315**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.9359**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e-003	1.8400e-003	0.0163	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.7035	3.7035	1.2000e-004	0.0000	3.7064
Total	**2.2600e-003**	**1.8400e-003**	**0.0163**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.7035**	**3.7035**	**1.2000e-004**	**0.0000**	**3.7064**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.9359**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e-003	1.8400e-003	0.0163	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.7035	3.7035	1.2000e-004	0.0000	3.7064
Total	**2.2600e-003**	**1.8400e-003**	**0.0163**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.7035**	**3.7035**	**1.2000e-004**	**0.0000**	**3.7064**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1033	0.0351	2.4000e-004	5.9000e-003	3.1000e-004	6.2100e-003	1.7000e-003	2.9000e-004	2.0000e-003	0.0000	23.4803	23.4803	1.7900e-003	0.0000	23.5249
Worker	7.8800e-003	6.3900e-003	0.0568	1.4000e-004	0.0163	1.0000e-004	0.0165	4.3400e-003	9.0000e-005	4.4400e-003	0.0000	12.8942	12.8942	4.0000e-004	0.0000	12.9042
Total	**0.0113**	**0.1096**	**0.0919**	**3.8000e-004**	**0.0222**	**4.1000e-004**	**0.0227**	**6.0400e-003**	**3.8000e-004**	**6.4400e-003**	**0.0000**	**36.3744**	**36.3744**	**2.1900e-003**	**0.0000**	**36.4292**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1220	0.1160	1.9000e-004		6.7100e-003	6.7100e-003		6.3100e-003	6.3100e-003	0.0000	16.2146	16.2146	3.9100e-003	0.0000	16.3124
Total	**0.0133**	**0.1220**	**0.1160**	**1.9000e-004**		**6.7100e-003**	**6.7100e-003**		**6.3100e-003**	**6.3100e-003**	**0.0000**	**16.2146**	**16.2146**	**3.9100e-003**	**0.0000**	**16.3124**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1033	0.0351	2.4000e-004	5.9000e-003	3.1000e-004	6.2100e-003	1.7000e-003	2.9000e-004	2.0000e-003	0.0000	23.4803	23.4803	1.7900e-003	0.0000	23.5249
Worker	7.8800e-003	6.3900e-003	0.0568	1.4000e-004	0.0163	1.0000e-004	0.0165	4.3400e-003	9.0000e-005	4.4400e-003	0.0000	12.8942	12.8942	4.0000e-004	0.0000	12.9042
Total	**0.0113**	**0.1096**	**0.0919**	**3.8000e-004**	**0.0222**	**4.1000e-004**	**0.0227**	**6.0400e-003**	**3.8000e-004**	**6.4400e-003**	**0.0000**	**36.3744**	**36.3744**	**2.1900e-003**	**0.0000**	**36.4292**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2633	250.2633	0.0600	0.0000	251.7622
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2633**	**250.2633**	**0.0600**	**0.0000**	**251.7622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0479	1.5111	0.4983	3.6200e-003	0.0911	4.1500e-003	0.0952	0.0263	3.9700e-003	0.0302	0.0000	359.2028	359.2028	0.0279	0.0000	359.9010
Worker	0.1132	0.0881	0.7974	2.1200e-003	0.2522	1.5400e-003	0.2537	0.0670	1.4200e-003	0.0684	0.0000	191.8434	191.8434	5.5300e-003	0.0000	191.9818
Total	**0.1611**	**1.5992**	**1.2956**	**5.7400e-003**	**0.3432**	**5.6900e-003**	**0.3489**	**0.0933**	**5.3900e-003**	**0.0987**	**0.0000**	**551.0462**	**551.0462**	**0.0335**	**0.0000**	**551.8827**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1843	1.6865	1.7673	2.9100e-003		0.0874	0.0874		0.0822	0.0822	0.0000	250.2630	250.2630	0.0600	0.0000	251.7619
Total	**0.1843**	**1.6865**	**1.7673**	**2.9100e-003**		**0.0874**	**0.0874**		**0.0822**	**0.0822**	**0.0000**	**250.2630**	**250.2630**	**0.0600**	**0.0000**	**251.7619**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0479	1.5111	0.4983	3.6200e-003	0.0911	4.1500e-003	0.0952	0.0263	3.9700e-003	0.0302	0.0000	359.2028	359.2028	0.0279	0.0000	359.9010
Worker	0.1132	0.0881	0.7974	2.1200e-003	0.2522	1.5400e-003	0.2537	0.0670	1.4200e-003	0.0684	0.0000	191.8434	191.8434	5.5300e-003	0.0000	191.9818
Total	**0.1611**	**1.5992**	**1.2956**	**5.7400e-003**	**0.3432**	**5.6900e-003**	**0.3489**	**0.0933**	**5.3900e-003**	**0.0987**	**0.0000**	**551.0462**	**551.0462**	**0.0335**	**0.0000**	**551.8827**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.2000e-004	2.9300e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7049	0.7049	2.0000e-005	0.0000	0.7054
Total	**4.2000e-004**	**3.2000e-004**	**2.9300e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.7049**	**0.7049**	**2.0000e-005**	**0.0000**	**0.7054**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.9358**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.6400e-003	0.0148	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.5715	3.5715	1.0000e-004	0.0000	3.5740
Total	**2.1100e-003**	**1.6400e-003**	**0.0148**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.5715**	**3.5715**	**1.0000e-004**	**0.0000**	**3.5740**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9337					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.9358**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.6400e-003	0.0148	4.0000e-005	4.6900e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2700e-003	0.0000	3.5715	3.5715	1.0000e-004	0.0000	3.5740
Total	**2.1100e-003**	**1.6400e-003**	**0.0148**	**4.0000e-005**	**4.6900e-003**	**3.0000e-005**	**4.7200e-003**	**1.2500e-003**	**3.0000e-005**	**1.2700e-003**	**0.0000**	**3.5715**	**3.5715**	**1.0000e-004**	**0.0000**	**3.5740**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4100e-003	0.0312	0.0327	5.0000e-005		1.6200e-003	1.6200e-003		1.5200e-003	1.5200e-003	0.0000	4.6345	4.6345	1.1100e-003	0.0000	4.6623
Total	**3.4100e-003**	**0.0312**	**0.0327**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**4.6345**	**4.6345**	**1.1100e-003**	**0.0000**	**4.6623**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0280	9.2300e-003	7.0000e-005	1.6900e-003	8.0000e-005	1.7600e-003	4.9000e-004	7.0000e-005	5.6000e-004	0.0000	6.6519	6.6519	5.2000e-004	0.0000	6.6648
Worker	2.1000e-003	1.6300e-003	0.0148	4.0000e-005	4.6700e-003	3.0000e-005	4.7000e-003	1.2400e-003	3.0000e-005	1.2700e-003	0.0000	3.5527	3.5527	1.0000e-004	0.0000	3.5552
Total	**2.9900e-003**	**0.0296**	**0.0240**	**1.1000e-004**	**6.3600e-003**	**1.1000e-004**	**6.4600e-003**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**0.0000**	**10.2046**	**10.2046**	**6.2000e-004**	**0.0000**	**10.2201**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4100e-003	0.0312	0.0327	5.0000e-005		1.6200e-003	1.6200e-003		1.5200e-003	1.5200e-003	0.0000	4.6345	4.6345	1.1100e-003	0.0000	4.6623
Total	**3.4100e-003**	**0.0312**	**0.0327**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**4.6345**	**4.6345**	**1.1100e-003**	**0.0000**	**4.6623**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0280	9.2300e-003	7.0000e-005	1.6900e-003	8.0000e-005	1.7600e-003	4.9000e-004	7.0000e-005	5.6000e-004	0.0000	6.6519	6.6519	5.2000e-004	0.0000	6.6648
Worker	2.1000e-003	1.6300e-003	0.0148	4.0000e-005	4.6700e-003	3.0000e-005	4.7000e-003	1.2400e-003	3.0000e-005	1.2700e-003	0.0000	3.5527	3.5527	1.0000e-004	0.0000	3.5552
Total	**2.9900e-003**	**0.0296**	**0.0240**	**1.1000e-004**	**6.3600e-003**	**1.1000e-004**	**6.4600e-003**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**0.0000**	**10.2046**	**10.2046**	**6.2000e-004**	**0.0000**	**10.2201**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6255	1.8356	3.0400e-003		0.0791	0.0791		0.0744	0.0744	0.0000	261.9394	261.9394	0.0623	0.0000	263.4972
Total	**0.1777**	**1.6255**	**1.8356**	**3.0400e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**261.9394**	**261.9394**	**0.0623**	**0.0000**	**263.4972**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0390	1.3129	0.4696	3.7100e-003	0.0953	2.0800e-003	0.0974	0.0275	1.9900e-003	0.0295	0.0000	369.1262	369.1262	0.0280	0.0000	369.8271
Worker	0.1106	0.0826	0.7610	2.1400e-003	0.2638	1.5700e-003	0.2654	0.0701	1.4500e-003	0.0716	0.0000	193.2243	193.2243	5.1600e-003	0.0000	193.3532
Total	**0.1496**	**1.3955**	**1.2305**	**5.8500e-003**	**0.3591**	**3.6500e-003**	**0.3627**	**0.0976**	**3.4400e-003**	**0.1010**	**0.0000**	**562.3504**	**562.3504**	**0.0332**	**0.0000**	**563.1803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6255	1.8356	3.0400e-003		0.0791	0.0791		0.0744	0.0744	0.0000	261.9391	261.9391	0.0623	0.0000	263.4968
Total	**0.1777**	**1.6255**	**1.8356**	**3.0400e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**261.9391**	**261.9391**	**0.0623**	**0.0000**	**263.4968**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0390	1.3129	0.4696	3.7100e-003	0.0953	2.0800e-003	0.0974	0.0275	1.9900e-003	0.0295	0.0000	369.1262	369.1262	0.0280	0.0000	369.8271
Worker	0.1106	0.0826	0.7610	2.1400e-003	0.2638	1.5700e-003	0.2654	0.0701	1.4500e-003	0.0716	0.0000	193.2243	193.2243	5.1600e-003	0.0000	193.3532
Total	**0.1496**	**1.3955**	**1.2305**	**5.8500e-003**	**0.3591**	**3.6500e-003**	**0.3627**	**0.0976**	**3.4400e-003**	**0.1010**	**0.0000**	**562.3504**	**562.3504**	**0.0332**	**0.0000**	**563.1803**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.9000e-004	2.6700e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.6786	0.6786	2.0000e-005	0.0000	0.6790
Total	**3.9000e-004**	**2.9000e-004**	**2.6700e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.6786**	**0.6786**	**2.0000e-005**	**0.0000**	**0.6790**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.9000e-004	2.6700e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.6786	0.6786	2.0000e-005	0.0000	0.6790
Total	**3.9000e-004**	**2.9000e-004**	**2.6700e-003**	**1.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.3000e-004**	**2.5000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.6786**	**0.6786**	**2.0000e-005**	**0.0000**	**0.6790**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6536					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.6549**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0300e-003	9.4800e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.4066	2.4066	6.0000e-005	0.0000	2.4082
Total	**1.3800e-003**	**1.0300e-003**	**9.4800e-003**	**3.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3100e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.4066**	**2.4066**	**6.0000e-005**	**0.0000**	**2.4082**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6536					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.6549**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0300e-003	9.4800e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.4066	2.4066	6.0000e-005	0.0000	2.4082
Total	**1.3800e-003**	**1.0300e-003**	**9.4800e-003**	**3.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3100e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.4066**	**2.4066**	**6.0000e-005**	**0.0000**	**2.4082**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	3.6600e-003	5.4300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.7660	0.7660	4.0000e-005	0.0000	0.7671
Total	**0.2807**	**3.6600e-003**	**5.4300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**4.0000e-005**	**0.0000**	**0.7671**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.0000e-004	3.7300e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.9914	0.9914	2.0000e-005	0.0000	0.9921
Total	**5.5000e-004**	**4.0000e-004**	**3.7300e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**0.9914**	**0.9914**	**2.0000e-005**	**0.0000**	**0.9921**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	3.6600e-003	5.4300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.7660	0.7660	4.0000e-005	0.0000	0.7671
Total	**0.2807**	**3.6600e-003**	**5.4300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**4.0000e-005**	**0.0000**	**0.7671**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.0000e-004	3.7300e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.9914	0.9914	2.0000e-005	0.0000	0.9921
Total	**5.5000e-004**	**4.0000e-004**	**3.7300e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**0.9914**	**0.9914**	**2.0000e-005**	**0.0000**	**0.9921**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744
Unmitigated	0.2121	0.7642	2.1275	6.0300e-003	0.5921	5.2000e-003	0.5973	0.1589	4.8500e-003	0.1638	0.0000	556.9079	556.9079	0.0267	0.0000	557.5744

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	165.0296	165.0296	9.5800e-003	1.9800e-003	165.8596
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	165.0296	165.0296	9.5800e-003	1.9800e-003	165.8596
NaturalGas Mitigated	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
NaturalGas Unmitigated	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.61586e+006	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
Total		**0.0141**	**0.1205**	**0.0513**	**7.7000e-004**		**9.7500e-003**	**9.7500e-003**		**9.7500e-003**	**9.7500e-003**	**0.0000**	**139.5922**	**139.5922**	**2.6800e-003**	**2.5600e-003**	**140.4217**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.61586e+006	0.0141	0.1205	0.0513	7.7000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	139.5922	139.5922	2.6800e-003	2.5600e-003	140.4217
Total		**0.0141**	**0.1205**	**0.0513**	**7.7000e-004**		**9.7500e-003**	**9.7500e-003**		**9.7500e-003**	**9.7500e-003**	**0.0000**	**139.5922**	**139.5922**	**2.6800e-003**	**2.5600e-003**	**140.4217**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	728151	165.0296	9.5800e-003	1.9800e-003	165.8596
Total		**165.0296**	**9.5800e-003**	**1.9800e-003**	**165.8596**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	728151	165.0296	9.5800e-003	1.9800e-003	165.8596
Total		**165.0296**	**9.5800e-003**	**1.9800e-003**	**165.8596**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Unmitigated	0.9370	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0201	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Total	**0.9370**	**7.7000e-003**	**0.6682**	**4.0000e-005**		**3.7000e-003**	**3.7000e-003**		**3.7000e-003**	**3.7000e-003**	**0.0000**	**1.0919**	**1.0919**	**1.0500e-003**	**0.0000**	**1.1181**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0201	7.7000e-003	0.6682	4.0000e-005		3.7000e-003	3.7000e-003		3.7000e-003	3.7000e-003	0.0000	1.0919	1.0919	1.0500e-003	0.0000	1.1181
Total	**0.9370**	**7.7000e-003**	**0.6682**	**4.0000e-005**		**3.7000e-003**	**3.7000e-003**		**3.7000e-003**	**3.7000e-003**	**0.0000**	**1.0919**	**1.0919**	**1.0500e-003**	**0.0000**	**1.1181**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	17.8490	6.6500e-003	3.8000e-003	19.1489
Unmitigated	22.3113	8.3200e-003	4.7500e-003	23.9361

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 12.7489	10.1130	5.9000e-004	1.2000e-004	10.1639
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.86386 / 3.69678	12.1983	7.7300e-003	4.6300e-003	13.7722
Total		**22.3113**	**8.3200e-003**	**4.7500e-003**	**23.9361**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.1991	8.0904	4.7000e-004	1.0000e-004	8.1311
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.69109 / 2.95743	9.7587	6.1800e-003	3.7100e-003	11.0178
Total		**17.8490**	**6.6500e-003**	**3.8100e-003**	**19.1489**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.4973	0.3222	0.0000	14.5517
Unmitigated	25.9891	1.2887	0.0000	58.2069

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.92	0.1911	9.4700e-003	0.0000	0.4279
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	124.23	25.7980	1.2792	0.0000	57.7790
Total		**25.9891**	**1.2887**	**0.0000**	**58.2069**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.23	0.0478	2.3700e-003	0.0000	0.1070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	31.0575	6.4495	0.3198	0.0000	14.4448
Total		**6.4973**	**0.3222**	**0.0000**	**14.5517**

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Date: 12/13/2018 2:41 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4345	47.0729	22.8935	0.0416	18.2393	2.3963	20.6356	9.9754	2.2048	12.1802	0.0000	4,148.2549	4,148.2549	1.2236	0.0000	4,178.8458
2020	4.5468	51.7040	32.7719	0.0832	18.4352	2.2017	20.6369	10.0235	2.0257	12.0492	0.0000	8,466.8368	8,466.8368	1.9761	0.0000	8,491.0983
2021	93.8094	32.8332	29.3656	0.0820	3.2459	1.0162	4.2621	0.8804	0.9558	1.8362	0.0000	8,363.6268	8,363.6268	0.9554	0.0000	8,387.5117
2022	93.7799	30.1926	28.0626	0.0809	3.2459	0.8609	4.1068	0.8804	0.8103	1.6907	0.0000	8,259.4772	8,259.4772	0.9479	0.0000	8,283.1755
2023	93.7534	26.5596	26.8917	0.0795	3.2459	0.7317	3.9776	0.8804	0.6885	1.5689	0.0000	8,119.9063	8,119.9063	0.9269	0.0000	8,143.0773
2024	93.7303	1.3367	3.0443	6.7100e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	653.8405	653.8405	0.0250	0.0000	654.4646
Maximum	**93.8094**	**51.7040**	**32.7719**	**0.0832**	**18.4352**	**2.3963**	**20.6369**	**10.0235**	**2.2048**	**12.1802**	**0.0000**	**8,466.8368**	**8,466.8368**	**1.9761**	**0.0000**	**8,491.0983**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4345	47.0729	22.8935	0.0416	7.2112	2.3963	9.6075	3.9166	2.2048	6.1214	0.0000	4,148.2549	4,148.2549	1.2236	0.0000	4,178.8458
2020	4.5468	51.7040	32.7719	0.0832	7.4072	2.2017	9.6089	3.9647	2.0257	5.9904	0.0000	8,466.8368	8,466.8368	1.9761	0.0000	8,491.0983
2021	93.8094	32.8332	29.3656	0.0820	3.2459	1.0162	4.2621	0.8804	0.9558	1.8362	0.0000	8,363.6268	8,363.6268	0.9554	0.0000	8,387.5117
2022	93.7799	30.1926	28.0626	0.0809	3.2459	0.8609	4.1068	0.8804	0.8103	1.6907	0.0000	8,259.4772	8,259.4772	0.9479	0.0000	8,283.1755
2023	93.7534	26.5596	26.8917	0.0795	3.2459	0.7317	3.9776	0.8804	0.6885	1.5689	0.0000	8,119.9063	8,119.9063	0.9269	0.0000	8,143.0773
2024	93.7303	1.3367	3.0443	6.7100e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	653.8405	653.8405	0.0250	0.0000	654.4646
Maximum	**93.8094**	**51.7040**	**32.7719**	**0.0832**	**7.4072**	**2.3963**	**9.6089**	**3.9647**	**2.2048**	**6.1214**	**0.0000**	**8,466.8368**	**8,466.8368**	**1.9761**	**0.0000**	**8,491.0983**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.04**	**0.00**	**40.72**	**53.22**	**0.00**	**41.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Total	**6.5907**	**5.0025**	**19.5662**	**0.0401**	**3.4887**	**0.1245**	**3.6132**	**0.9348**	**0.1225**	**1.0573**	**0.0000**	**4,464.6655**	**4,464.6655**	**0.1960**	**0.0155**	**4,474.1714**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Total	**6.5907**	**5.0025**	**19.5662**	**0.0401**	**3.4887**	**0.1245**	**3.6132**	**0.9348**	**0.1225**	**1.0573**	**0.0000**	**4,464.6655**	**4,464.6655**	**0.1960**	**0.0155**	**4,474.1714**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0787**	**2.3904**	**20.4691**	**9.9326**	**2.1991**	**12.1317**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0377	1.4506	0.3539	2.4900e-003	0.0469	5.2000e-003	0.0521	0.0127	4.9700e-003	0.0177		276.2360	276.2360	0.0280		276.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.0995**	**1.5002**	**0.8305**	**3.5500e-003**	**0.1606**	**5.9500e-003**	**0.1665**	**0.0429**	**5.6600e-003**	**0.0485**		**381.8020**	**381.8020**	**0.0320**		**382.6013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0507**	**2.3904**	**9.4411**	**3.8737**	**2.1991**	**6.0728**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0377	1.4506	0.3539	2.4900e-003	0.0469	5.2000e-003	0.0521	0.0127	4.9700e-003	0.0177		276.2360	276.2360	0.0280		276.9359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0496	0.4766	1.0600e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		105.5661	105.5661	3.9700e-003		105.6654
Total	**0.0995**	**1.5002**	**0.8305**	**3.5500e-003**	**0.1606**	**5.9500e-003**	**0.1665**	**0.0429**	**5.6600e-003**	**0.0485**		**381.8020**	**381.8020**	**0.0320**		**382.6013**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0787**	**2.1974**	**20.2761**	**9.9326**	**2.0216**	**11.9542**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	1.3669	0.3234	2.4700e-003	0.2429	3.5500e-003	0.2464	0.0608	3.4000e-003	0.0642		275.2612	275.2612	0.0280		275.9617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.0883**	**1.4105**	**0.7452**	**3.5000e-003**	**0.3565**	**4.2700e-003**	**0.3608**	**0.0910**	**4.0700e-003**	**0.0950**		**377.5785**	**377.5785**	**0.0314**		**378.3645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0507**	**2.1974**	**9.2481**	**3.8737**	**2.0216**	**5.8953**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	1.3669	0.3234	2.4700e-003	0.2429	3.5500e-003	0.2464	0.0608	3.4000e-003	0.0642		275.2612	275.2612	0.0280		275.9617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0436	0.4218	1.0300e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		102.3172	102.3172	3.4200e-003		102.4028
Total	**0.0883**	**1.4105**	**0.7452**	**3.5000e-003**	**0.3565**	**4.2700e-003**	**0.3608**	**0.0910**	**4.0700e-003**	**0.0950**		**377.5785**	**377.5785**	**0.0314**		**378.3645**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6866	0.0000	8.6866	3.5985	0.0000	3.5985			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6866**	**2.1739**	**10.8605**	**3.5985**	**2.0000**	**5.5985**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.4580	0.3450	2.6400e-003	0.0446	3.7900e-003	0.0484	0.0122	3.6300e-003	0.0159		293.6120	293.6120	0.0299		294.3591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.0967**	**1.5065**	**0.8136**	**3.7800e-003**	**0.1710**	**4.5900e-003**	**0.1755**	**0.0457**	**4.3700e-003**	**0.0501**		**407.2978**	**407.2978**	**0.0337**		**408.1401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3878	0.0000	3.3878	1.4034	0.0000	1.4034			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3878**	**2.1739**	**5.5617**	**1.4034**	**2.0000**	**3.4034**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.4580	0.3450	2.6400e-003	0.0446	3.7900e-003	0.0484	0.0122	3.6300e-003	0.0159		293.6120	293.6120	0.0299		294.3591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0625	0.0485	0.4687	1.1400e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		113.6858	113.6858	3.8000e-003		113.7809
Total	**0.0967**	**1.5065**	**0.8136**	**3.7800e-003**	**0.1710**	**4.5900e-003**	**0.1755**	**0.0457**	**4.3700e-003**	**0.0501**		**407.2978**	**407.2978**	**0.0337**		**408.1401**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5683	15.8896	5.3486	0.0347	0.8587	0.0855	0.9442	0.2471	0.0818	0.3289		3,765.1119	3,765.1119	0.2757		3,772.0043
Worker	1.1817	0.9160	8.8576	0.0216	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,148.6619	2,148.6619	0.0719		2,150.4595
Total	**1.7500**	**16.8056**	**14.2063**	**0.0562**	**3.2459**	**0.1007**	**3.3467**	**0.8804**	**0.0958**	**0.9762**		**5,913.7738**	**5,913.7738**	**0.3476**		**5,922.4638**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5683	15.8896	5.3486	0.0347	0.8587	0.0855	0.9442	0.2471	0.0818	0.3289		3,765.1119	3,765.1119	0.2757		3,772.0043
Worker	1.1817	0.9160	8.8576	0.0216	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,148.6619	2,148.6619	0.0719		2,150.4595
Total	**1.7500**	**16.8056**	**14.2063**	**0.0562**	**3.2459**	**0.1007**	**3.3467**	**0.8804**	**0.0958**	**0.9762**		**5,913.7738**	**5,913.7738**	**0.3476**		**5,922.4638**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0324	0.3185	8.3000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		82.3686	82.3686	2.5300e-003		82.4319
Total	**0.0435**	**0.0324**	**0.3185**	**8.3000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**82.3686**	**82.3686**	**2.5300e-003**		**82.4319**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2202	0.1640	1.6139	4.1900e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		417.3342	417.3342	0.0128		417.6549
Total	**0.2202**	**0.1640**	**1.6139**	**4.1900e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**417.3342**	**417.3342**	**0.0128**		**417.6549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2202	0.1640	1.6139	4.1900e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		417.3342	417.3342	0.0128		417.6549
Total	**0.2202**	**0.1640**	**1.6139**	**4.1900e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**417.3342**	**417.3342**	**0.0128**		**417.6549**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4695	14.5852	4.7632	0.0343	0.8587	0.0429	0.9015	0.2471	0.0410	0.2881		3,734.5744	3,734.5744	0.2756		3,741.4637
Worker	1.0952	0.8159	8.0271	0.0209	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,075.6885	2,075.6885	0.0638		2,077.2837
Total	**1.5647**	**15.4011**	**12.7904**	**0.0551**	**3.2459**	**0.0576**	**3.3035**	**0.8804**	**0.0546**	**0.9350**		**5,810.2629**	**5,810.2629**	**0.3394**		**5,818.7474**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0405	0.0289	0.2902	8.0000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		79.4303	79.4303	2.2600e-003		79.4866
Total	**0.0405**	**0.0289**	**0.2902**	**8.0000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**79.4303**	**79.4303**	**2.2600e-003**		**79.4866**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2050	0.1466	1.4705	4.0400e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		402.4467	402.4467	0.0114		402.7323
Total	**0.2050**	**0.1466**	**1.4705**	**4.0400e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**402.4467**	**402.4467**	**0.0114**		**402.7323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2050	0.1466	1.4705	4.0400e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		402.4467	402.4467	0.0114		402.7323
Total	**0.2050**	**0.1466**	**1.4705**	**4.0400e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**402.4467**	**402.4467**	**0.0114**		**402.7323**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4319	13.8479	4.3853	0.0339	0.8586	0.0376	0.8962	0.2471	0.0360	0.2830		3,703.5010	3,703.5010	0.2792		3,710.4799
Worker	1.0198	0.7291	7.3139	0.0201	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		2,001.6426	2,001.6426	0.0568		2,003.0634
Total	**1.4516**	**14.5770**	**11.6992**	**0.0540**	**3.2459**	**0.0519**	**3.2978**	**0.8804**	**0.0491**	**0.9295**		**5,705.1437**	**5,705.1437**	**0.3360**		**5,713.5433**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3357	11.5216	3.9648	0.0332	0.8586	0.0181	0.8767	0.2470	0.0173	0.2643		3,637.8730	3,637.8730	0.2683		3,644.5801
Worker	0.9518	0.6531	6.6829	0.0193	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,926.8234	1,926.8234	0.0507		1,928.0911
Total	**1.2875**	**12.1747**	**10.6477**	**0.0525**	**3.2459**	**0.0320**	**3.2779**	**0.8804**	**0.0301**	**0.9105**		**5,564.6964**	**5,564.6964**	**0.3190**		**5,572.6712**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3357	11.5216	3.9648	0.0332	0.8586	0.0181	0.8767	0.2470	0.0173	0.2643		3,637.8730	3,637.8730	0.2683		3,644.5801
Worker	0.9518	0.6531	6.6829	0.0193	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,926.8234	1,926.8234	0.0507		1,928.0911
Total	**1.2875**	**12.1747**	**10.6477**	**0.0525**	**3.2459**	**0.0320**	**3.2779**	**0.8804**	**0.0301**	**0.9105**		**5,564.6964**	**5,564.6964**	**0.3190**		**5,572.6712**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0378	0.0259	0.2652	7.7000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		76.4613	76.4613	2.0100e-003		76.5116
Total	**0.0378**	**0.0259**	**0.2652**	**7.7000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**76.4613**	**76.4613**	**2.0100e-003**		**76.5116**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0378	0.0259	0.2652	7.7000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		76.4613	76.4613	2.0100e-003		76.5116
Total	**0.0378**	**0.0259**	**0.2652**	**7.7000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**76.4613**	**76.4613**	**2.0100e-003**		**76.5116**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1914	0.1313	1.3437	3.8900e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		387.4037	387.4037	0.0102		387.6585
Total	**0.1914**	**0.1313**	**1.3437**	**3.8900e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**387.4037**	**387.4037**	**0.0102**		**387.6585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1914	0.1313	1.3437	3.8900e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		387.4037	387.4037	0.0102		387.6585
Total	**0.1914**	**0.1313**	**1.3437**	**3.8900e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**387.4037**	**387.4037**	**0.0102**		**387.6585**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1792	0.1179	1.2342	3.7400e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		372.3925	372.3925	9.1100e-003		372.6203
Total	**0.1792**	**0.1179**	**1.2342**	**3.7400e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**372.3925**	**372.3925**	**9.1100e-003**		**372.6203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1792	0.1179	1.2342	3.7400e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		372.3925	372.3925	9.1100e-003		372.6203
Total	**0.1792**	**0.1179**	**1.2342**	**3.7400e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**372.3925**	**372.3925**	**9.1100e-003**		**372.6203**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209
Unmitigated	1.2661	4.2566	11.8612	0.0355	3.4887	0.0299	3.5187	0.9348	0.0279	0.9628		3,608.1464	3,608.1464	0.1670		3,612.3209

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
NaturalGas Unmitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7166.73	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.16673	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Unmitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

CalEEMod Version: CalEEMod.2016.3.2

Date: 12/13/2018 2:44 PM

Rancho Maria - Willow Creek

Santa Barbara County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.20	Acre	8.20	357,192.00	0
City Park	10.70	Acre	10.70	466,092.00	0
Single Family Housing	90.00	Dwelling Unit	26.10	207,000.00	266

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults were utilized. Operational year of 2024. Adjust CO2 to meet a RPS of 33% by 2020.

Land Use - The Willow Creek neighborhood consists of 90 single family homes on 26.1 acres. 8.2 acres of new roads to be built and 10.7 acres of interconnected open space.. Estimated population is based on SBCAG Growth Forecast persons per household estimates (2.95).

Construction Phase - project construction schedule based on applicant provided information where possible, otherwise CallEEMod default values were used.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Off-road Equipment - CalEEMod defaults were utilized.

Trips and VMT - Haul Trip lengths was shorted to 5 miles to account for all cut and fill material would be balanced.

Grading - Import of 27,031 CY of earthwork material from the Hidden Canyon Neighborhood.

Architectural Coating -

Vehicle Trips - Updated trip rates per Traffic Study (Stantec 2018).

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Vehicle Emission Factors - CalEEMod defaults were utilized.

Road Dust - CalEEMod defaults were utilized.

Woodstoves - CalEEMod defaults were utilized.

Consumer Products - CalEEMod defaults were utilized.

Area Coating - mod

Landscape Equipment - CalEEMod defaults were utilized.

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Solid Waste - CalEEMod defaults were utilized.

Construction Off-road Equipment Mitigation - It was assumed that site would be watered 3 times daily and off-road vehicle speeds would be limited to 15 mile per hour

Mobile Land Use Mitigation - No mitigations were assumed.

Energy Mitigation -

Water Mitigation - Per Applicant provided information a 20% reduction in outdoor and indoor water use was assumed.

Waste Mitigation - In accordance with AB 341 a 75% reduction in waste production was assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	740.00	230.00
tblConstructionPhase	NumDays	75.00	165.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	55.00	20.00
tblConstructionPhase	NumDays	30.00	176.00
tblGrading	MaterialImported	0.00	13,516.00
tblGrading	MaterialImported	0.00	13,516.00
tblLandUse	LandUseSquareFeet	162,000.00	207,000.00
tblLandUse	LotAcreage	29.22	26.10
tblLandUse	Population	245.00	266.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblSolidWaste	SolidWasteGenerationRate	109.06	124.23
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4450	47.0606	22.9639	0.0414	18.2393	2.3967	20.6360	9.9754	2.2052	12.1806	0.0000	4,134.8891	4,134.8891	1.2253	0.0000	4,165.5222
2020	4.5570	51.6905	32.8367	0.0819	18.4352	2.2020	20.6372	10.0235	2.0260	12.0495	0.0000	8,329.3384	8,329.3384	1.9778	0.0000	8,353.9279
2021	93.8378	32.8929	30.1389	0.0808	3.2459	1.0184	4.2643	0.8804	0.9579	1.8383	0.0000	8,227.4903	8,227.4903	0.9683	0.0000	8,251.6976
2022	93.8067	30.2324	28.7576	0.0797	3.2459	0.8629	4.1088	0.8804	0.8122	1.6926	0.0000	8,124.5939	8,124.5939	0.9610	0.0000	8,148.6178
2023	93.7789	26.5924	27.4641	0.0783	3.2459	0.7326	3.9785	0.8804	0.6894	1.5697	0.0000	7,987.2657	7,987.2657	0.9381	0.0000	8,010.7189
2024	93.7547	1.3536	3.0799	6.6200e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	645.2408	645.2408	0.0249	0.0000	645.8635
Maximum	**93.8378**	**51.6905**	**32.8367**	**0.0819**	**18.4352**	**2.3967**	**20.6372**	**10.0235**	**2.2052**	**12.1806**	**0.0000**	**8,329.3384**	**8,329.3384**	**1.9778**	**0.0000**	**8,353.9279**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4450	47.0606	22.9639	0.0414	7.2112	2.3967	9.6079	3.9166	2.2052	6.1217	0.0000	4,134.8891	4,134.8891	1.2253	0.0000	4,165.5222
2020	4.5570	51.6905	32.8367	0.0819	7.4072	2.2020	9.6092	3.9647	2.0260	5.9906	0.0000	8,329.3384	8,329.3384	1.9778	0.0000	8,353.9278
2021	93.8378	32.8929	30.1389	0.0808	3.2459	1.0184	4.2643	0.8804	0.9579	1.8383	0.0000	8,227.4903	8,227.4903	0.9683	0.0000	8,251.6976
2022	93.8067	30.2324	28.7576	0.0797	3.2459	0.8629	4.1088	0.8804	0.8122	1.6926	0.0000	8,124.5939	8,124.5939	0.9610	0.0000	8,148.6178
2023	93.7789	26.5924	27.4641	0.0783	3.2459	0.7326	3.9785	0.8804	0.6894	1.5697	0.0000	7,987.2657	7,987.2657	0.9381	0.0000	8,010.7188
2024	93.7547	1.3536	3.0799	6.6200e-003	0.4800	0.0636	0.5436	0.1273	0.0634	0.1908	0.0000	645.2408	645.2408	0.0249	0.0000	645.8635
Maximum	**93.8378**	**51.6905**	**32.8367**	**0.0819**	**7.4072**	**2.3967**	**9.6092**	**3.9647**	**2.2052**	**6.1217**	**0.0000**	**8,329.3384**	**8,329.3384**	**1.9778**	**0.0000**	**8,353.9278**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.04**	**0.00**	**40.72**	**53.22**	**0.00**	**41.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Total	**6.5619**	**5.1414**	**20.4028**	**0.0393**	**3.4887**	**0.1247**	**3.6134**	**0.9348**	**0.1227**	**1.0575**	**0.0000**	**4,383.6950**	**4,383.6950**	**0.2016**	**0.0155**	**4,393.3408**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Energy	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Mobile	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Total	**6.5619**	**5.1414**	**20.4028**	**0.0393**	**3.4887**	**0.1247**	**3.6134**	**0.9348**	**0.1227**	**1.0575**	**0.0000**	**4,383.6950**	**4,383.6950**	**0.2016**	**0.0155**	**4,393.3408**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	2/3/2020	5	176	
2	Grading	Grading	2/4/2020	9/21/2020	5	165	
3	Building Construction 1	Building Construction	12/1/2020	10/18/2021	5	230	
4	Paving 1	Paving	10/19/2021	11/15/2021	5	20	
5	Architectural Coating 1	Architectural Coating	11/16/2021	12/13/2021	5	20	
6	Building Construction 2	Building Construction	12/14/2021	10/31/2022	5	230	
7	Paving 2	Paving	11/1/2022	11/28/2022	5	20	
8	Architectural Coating 2	Architectural Coating	11/29/2022	12/26/2022	5	20	
9	Building Constrution 3	Building Construction	12/27/2022	11/13/2023	5	230	
10	Paving 3	Paving	11/14/2023	12/11/2023	5	20	
11	Architectural Coating 3	Architectural Coating	12/12/2023	1/8/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 412.5

Acres of Paving: 8.2

Residential Indoor: 419,175; Residential Outdoor: 139,725; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 1	Cranes	1	7.00	231	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	2	8.00	130	0.42
Paving 1	Paving Equipment	2	8.00	132	0.36
Paving 1	Rollers	2	8.00	80	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Constrution 3	Cranes	1	7.00	231	0.29
Building Constrution 3	Forklifts	3	8.00	89	0.20

Building Constrution 3	Generator Sets	1	8.00	84	0.74
Building Constrution 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Constrution 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	2	8.00	130	0.42
Paving 3	Paving Equipment	2	8.00	132	0.36
Paving 3	Rollers	2	8.00	80	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,690.00	8.30	6.40	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Constrution 3	9	378.00	145.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	6	15.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	76.00	0.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0787**	**2.3904**	**20.4691**	**9.9326**	**2.1991**	**12.1317**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	1.4311	0.4039	2.3900e-003	0.0469	5.5900e-003	0.0525	0.0127	5.3500e-003	0.0181		265.3094	265.3094	0.0297		266.0506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1100**	**1.4879**	**0.9009**	**3.4300e-003**	**0.1606**	**6.3400e-003**	**0.1669**	**0.0429**	**6.0400e-003**	**0.0489**		**368.4362**	**368.4362**	**0.0337**		**369.2777**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.0507**	**2.3904**	**9.4411**	**3.8737**	**2.1991**	**6.0728**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	1.4311	0.4039	2.3900e-003	0.0469	5.5900e-003	0.0525	0.0127	5.3500e-003	0.0181		265.3094	265.3094	0.0297		266.0506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0568	0.4970	1.0400e-003	0.1137	7.5000e-004	0.1144	0.0302	6.9000e-004	0.0309		103.1268	103.1268	4.0100e-003		103.2271
Total	**0.1100**	**1.4879**	**0.9009**	**3.4300e-003**	**0.1606**	**6.3400e-003**	**0.1669**	**0.0429**	**6.0400e-003**	**0.0489**		**368.4362**	**368.4362**	**0.0337**		**369.2777**

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0787	0.0000	18.0787	9.9326	0.0000	9.9326			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0787**	**2.1974**	**20.2761**	**9.9326**	**2.0216**	**11.9542**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.3477	0.3672	2.3700e-003	0.2429	3.8400e-003	0.2467	0.0608	3.6700e-003	0.0645		264.0520	264.0520	0.0296		264.7918
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.0976**	**1.3976**	**0.8053**	**3.3700e-003**	**0.3565**	**4.5600e-003**	**0.3611**	**0.0910**	**4.3400e-003**	**0.0953**		**364.0030**	**364.0030**	**0.0330**		**364.8287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0507	0.0000	7.0507	3.8737	0.0000	3.8737			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0507**	**2.1974**	**9.2481**	**3.8737**	**2.0216**	**5.8953**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0341	1.3477	0.3672	2.3700e-003	0.2429	3.8400e-003	0.2467	0.0608	3.6700e-003	0.0645		264.0520	264.0520	0.0296		264.7918
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0635	0.0499	0.4381	1.0000e-003	0.1137	7.2000e-004	0.1144	0.0302	6.7000e-004	0.0308		99.9509	99.9509	3.4400e-003		100.0369
Total	**0.0976**	**1.3976**	**0.8053**	**3.3700e-003**	**0.3565**	**4.5600e-003**	**0.3611**	**0.0910**	**4.3400e-003**	**0.0953**		**364.0030**	**364.0030**	**0.0330**		**364.8287**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6866	0.0000	8.6866	3.5985	0.0000	3.5985			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6866**	**2.1739**	**10.8605**	**3.5985**	**2.0000**	**5.5985**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0364	1.4375	0.3917	2.5300e-003	0.0446	4.1000e-003	0.0487	0.0122	3.9200e-003	0.0162		281.6555	281.6555	0.0316		282.4446
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1069**	**1.4930**	**0.8784**	**3.6500e-003**	**0.1710**	**4.9000e-003**	**0.1759**	**0.0457**	**4.6600e-003**	**0.0504**		**392.7121**	**392.7121**	**0.0354**		**393.5967**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3878	0.0000	3.3878	1.4034	0.0000	1.4034			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3878**	**2.1739**	**5.5617**	**1.4034**	**2.0000**	**3.4034**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0364	1.4375	0.3917	2.5300e-003	0.0446	4.1000e-003	0.0487	0.0122	3.9200e-003	0.0162		281.6555	281.6555	0.0316		282.4446
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0554	0.4868	1.1200e-003	0.1263	8.0000e-004	0.1271	0.0335	7.4000e-004	0.0343		111.0566	111.0566	3.8200e-003		111.1521
Total	**0.1069**	**1.4930**	**0.8784**	**3.6500e-003**	**0.1710**	**4.9000e-003**	**0.1759**	**0.0457**	**4.6600e-003**	**0.0504**		**392.7121**	**392.7121**	**0.0354**		**393.5967**

3.4 Building Construction 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5993	15.8474	5.8747	0.0339	0.8587	0.0880	0.9467	0.2471	0.0842	0.3312		3,677.3061	3,677.3061	0.2885		3,684.5191
Worker	1.3327	1.0479	9.2000	0.0211	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,098.9692	2,098.9692	0.0722		2,100.7742
Total	**1.9320**	**16.8953**	**15.0748**	**0.0550**	**3.2459**	**0.1032**	**3.3491**	**0.8804**	**0.0982**	**0.9786**		**5,776.2753**	**5,776.2753**	**0.3607**		**5,785.2934**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5993	15.8474	5.8747	0.0339	0.8587	0.0880	0.9467	0.2471	0.0842	0.3312		3,677.3061	3,677.3061	0.2885		3,684.5191
Worker	1.3327	1.0479	9.2000	0.0211	2.3873	0.0152	2.4025	0.6333	0.0140	0.6474		2,098.9692	2,098.9692	0.0722		2,100.7742
Total	**1.9320**	**16.8953**	**15.0748**	**0.0550**	**3.2459**	**0.1032**	**3.3491**	**0.8804**	**0.0982**	**0.9786**		**5,776.2753**	**5,776.2753**	**0.3607**		**5,785.2934**

3.4 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

3.5 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3298**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0491	0.0370	0.3301	8.1000e-004	0.0947	5.8000e-004	0.0953	0.0251	5.4000e-004	0.0257		80.4638	80.4638	2.5400e-003		80.5273
Total	**0.0491**	**0.0370**	**0.3301**	**8.1000e-004**	**0.0947**	**5.8000e-004**	**0.0953**	**0.0251**	**5.4000e-004**	**0.0257**		**80.4638**	**80.4638**	**2.5400e-003**		**80.5273**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2485	0.1876	1.6726	4.1000e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		407.6835	407.6835	0.0129		408.0049
Total	**0.2485**	**0.1876**	**1.6726**	**4.1000e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**407.6835**	**407.6835**	**0.0129**		**408.0049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**93.5892**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2485	0.1876	1.6726	4.1000e-003	0.4800	2.9600e-003	0.4829	0.1273	2.7300e-003	0.1301		407.6835	407.6835	0.0129		408.0049
Total	**0.2485**	**0.1876**	**1.6726**	**4.1000e-003**	**0.4800**	**2.9600e-003**	**0.4829**	**0.1273**	**2.7300e-003**	**0.1301**		**407.6835**	**407.6835**	**0.0129**		**408.0049**

3.7 Building Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4975	14.5275	5.2448	0.0335	0.8587	0.0450	0.9037	0.2471	0.0431	0.2901		3,646.4376	3,646.4376	0.2883		3,653.6460
Worker	1.2361	0.9333	8.3189	0.0204	2.3873	0.0147	2.4020	0.6333	0.0136	0.6469		2,027.6889	2,027.6889	0.0639		2,029.2874
Total	**1.7337**	**15.4608**	**13.5637**	**0.0539**	**3.2459**	**0.0598**	**3.3057**	**0.8804**	**0.0566**	**0.9370**		**5,674.1264**	**5,674.1264**	**0.3523**		**5,682.9334**

3.7 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

3.8 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1770**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0331	0.3000	7.8000e-004	0.0947	5.7000e-004	0.0953	0.0251	5.2000e-004	0.0257		77.5942	77.5942	2.2500e-003		77.6506
Total	**0.0458**	**0.0331**	**0.3000**	**7.8000e-004**	**0.0947**	**5.7000e-004**	**0.0953**	**0.0251**	**5.2000e-004**	**0.0257**		**77.5942**	**77.5942**	**2.2500e-003**		**77.6506**

3.9 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2318	0.1677	1.5201	3.9500e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		393.1440	393.1440	0.0114		393.4295
Total	**0.2318**	**0.1677**	**1.5201**	**3.9500e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**393.1440**	**393.1440**	**0.0114**		**393.4295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**93.5749**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2318	0.1677	1.5201	3.9500e-003	0.4800	2.8700e-003	0.4829	0.1273	2.6500e-003	0.1300		393.1440	393.1440	0.0114		393.4295
Total	**0.2318**	**0.1677**	**1.5201**	**3.9500e-003**	**0.4800**	**2.8700e-003**	**0.4829**	**0.1273**	**2.6500e-003**	**0.1300**		**393.1440**	**393.1440**	**0.0114**		**393.4295**

3.10 Building Constrution 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4578	13.7829	4.8337	0.0331	0.8586	0.0396	0.8983	0.2471	0.0379	0.2849		3,614.8863	3,614.8863	0.2922		3,622.1913
Worker	1.1530	0.8339	7.5605	0.0196	2.3873	0.0143	2.4015	0.6333	0.0132	0.6465		1,955.3740	1,955.3740	0.0568		1,956.7943
Total	**1.6107**	**14.6168**	**12.3942**	**0.0528**	**3.2459**	**0.0539**	**3.2998**	**0.8804**	**0.0511**	**0.9314**		**5,570.2603**	**5,570.2603**	**0.3490**		**5,578.9856**

3.10 Building Constrution 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3564	11.4606	4.3296	0.0324	0.8586	0.0189	0.8776	0.2470	0.0181	0.2652		3,549.7498	3,549.7498	0.2797		3,556.7430
Worker	1.0785	0.7469	6.8905	0.0189	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,882.3060	1,882.3060	0.0506		1,883.5698
Total	**1.4349**	**12.2075**	**11.2201**	**0.0513**	**3.2459**	**0.0329**	**3.2787**	**0.8804**	**0.0309**	**0.9113**		**5,432.0558**	**5,432.0558**	**0.3303**		**5,440.3128**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3564	11.4606	4.3296	0.0324	0.8586	0.0189	0.8776	0.2470	0.0181	0.2652		3,549.7498	3,549.7498	0.2797		3,556.7430
Worker	1.0785	0.7469	6.8905	0.0189	2.3873	0.0139	2.4012	0.6333	0.0128	0.6462		1,882.3060	1,882.3060	0.0506		1,883.5698
Total	**1.4349**	**12.2075**	**11.2201**	**0.0513**	**3.2459**	**0.0329**	**3.2787**	**0.8804**	**0.0309**	**0.9113**		**5,432.0558**	**5,432.0558**	**0.3303**		**5,440.3128**

3.11 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0296	0.2734	7.5000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		74.6947	74.6947	2.0100e-003		74.7448
Total	**0.0428**	**0.0296**	**0.2734**	**7.5000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**74.6947**	**74.6947**	**2.0100e-003**		**74.7448**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.0742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1069**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0296	0.2734	7.5000e-004	0.0947	5.5000e-004	0.0953	0.0251	5.1000e-004	0.0256		74.6947	74.6947	2.0100e-003		74.7448
Total	**0.0428**	**0.0296**	**0.2734**	**7.5000e-004**	**0.0947**	**5.5000e-004**	**0.0953**	**0.0251**	**5.1000e-004**	**0.0256**		**74.6947**	**74.6947**	**2.0100e-003**		**74.7448**

3.12 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2169	0.1502	1.3854	3.8000e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		378.4531	378.4531	0.0102		378.7072
Total	**0.2169**	**0.1502**	**1.3854**	**3.8000e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**378.4531**	**378.4531**	**0.0102**		**378.7072**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**93.5620**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2169	0.1502	1.3854	3.8000e-003	0.4800	2.8000e-003	0.4828	0.1273	2.5800e-003	0.1299		378.4531	378.4531	0.0102		378.7072
Total	**0.2169**	**0.1502**	**1.3854**	**3.8000e-003**	**0.4800**	**2.8000e-003**	**0.4828**	**0.1273**	**2.5800e-003**	**0.1299**		**378.4531**	**378.4531**	**0.0102**		**378.7072**

3.12 Architectural Coating 3 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2036	0.1348	1.2697	3.6500e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		363.7928	363.7928	9.0600e-003		364.0193
Total	**0.2036**	**0.1348**	**1.2697**	**3.6500e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**363.7928**	**363.7928**	**9.0600e-003**		**364.0193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	93.3703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**93.5511**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2036	0.1348	1.2697	3.6500e-003	0.4800	2.7300e-003	0.4827	0.1273	2.5100e-003	0.1299		363.7928	363.7928	9.0600e-003		364.0193
Total	**0.2036**	**0.1348**	**1.2697**	**3.6500e-003**	**0.4800**	**2.7300e-003**	**0.4827**	**0.1273**	**2.5100e-003**	**0.1299**		**363.7928**	**363.7928**	**9.0600e-003**		**364.0193**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903
Unmitigated	1.2373	4.3955	12.6979	0.0347	3.4887	0.0301	3.5189	0.9348	0.0281	0.9630		3,527.1759	3,527.1759	0.1726		3,531.4903

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	849.60	884.70	769.50	1,561,913	1,561,913
Total	849.60	884.70	769.50	1,561,913	1,561,913

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	6.60	5.50	6.40	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0
Single Family Housing	8.30	4.50	4.90	25.60	9.90	64.50	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Other Asphalt Surfaces	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873
Single Family Housing	0.572071	0.027190	0.206810	0.117824	0.018361	0.005136	0.017629	0.020081	0.002790	0.002084	0.006580	0.002569	0.000873

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
NaturalGas Unmitigated	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7166.73	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.16673	0.0773	0.6605	0.2811	4.2200e-003		0.0534	0.0534		0.0534	0.0534		843.1452	843.1452	0.0162	0.0155	848.1556
Total		**0.0773**	**0.6605**	**0.2811**	**4.2200e-003**		**0.0534**	**0.0534**		**0.0534**	**0.0534**		**843.1452**	**843.1452**	**0.0162**	**0.0155**	**848.1556**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948
Unmitigated	5.2473	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411	0.0000	13.3738	13.3738	0.0128	0.0000	13.6948

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4436					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.5803					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2233	0.0855	7.4239	3.9000e-004		0.0411	0.0411		0.0411	0.0411		13.3738	13.3738	0.0128		13.6948
Total	**5.2473**	**0.0855**	**7.4239**	**3.9000e-004**		**0.0411**	**0.0411**		**0.0411**	**0.0411**	**0.0000**	**13.3738**	**13.3738**	**0.0128**	**0.0000**	**13.6948**

N_20 Mobile Emissions for the Neighborhoods of Willow Creek & Hidden Canyon Project

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	Total
CalEEMod Fleet Mix	0.5721	0.0272	0.2068	0.1178	0.0184	0.0051	0.0176	0.0201	0.0028	0.0021	0.0066	0.0000	0.0009	**100%**
N_2O Emission Factor (g/mi)[1]	0.0036	0.0066	0.0066	0.0134	0.0134	0.0015	0.0048	0.0048	0.0048	0.0048	0.0069	0.0048	0.0015	
N_2O Emissions	0.002059	0.000179	0.001365	0.001579	0.000246	0.000008	0.000085	0.000096	0.000013	0.000010	0.000045	0.000000	0.000001	**0.01**

Annual VMT (from CalEEMod): 2,533,770

Annual N_20 Mobile Emissions (MT) (N_2O Emissions [g/mi] x Annual VMT x 0.000001 MT/g): **0.0144 MT N_2O**

Total N_2O Mobile Emissions as MT CO_2e (emissions in metric tons x 298 global warming potential): **4.29 MT CO_2e**

[1] *EPA's Emission Factors for Greenhous Gas Inventories*
https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

Appendix I

Preliminary Policy Consistency Analysis

Appendix I – Policy Consistency

This section provides a preliminary analysis of the project's consistency with goals, policies, actions, and development standards in the Santa Barbara County Comprehensive Plan and the Orcutt Community Plan (OCP) that are applicable to the various components of the project and the location of Key Site 21, as defined in the OCP. Although policy consistency determinations would not result in direct impacts to the physical environment beyond the potential impacts identified and addressed in other sections of this SEIR, the policy consistency discussion is provided for informational purposes.

With respect to each of the identified goals, policies, actions and development standards, the project is described as "consistent" (the project could directly implement the policy or would not hinder implementation of the policy) or "inconsistent" (the project may hinder implementation or directly conflicts with of the policy). It should be noted that the discussion below is intended to guide policy interpretation but is not intended to replace the County decision-making process. A final determination of the project's consistency with applicable County goals, policies, actions, and development standards will be made by County decision-makers when they act on the project.

Refer also to Section 4.3, *Air Quality*, for an analysis of the project's consistency with the adopted Clean Air Plan, and Section 4.9, *Greenhouse Gas Emissions*, for a discussion of the proposed project's consistency with applicable greenhouse gas emission (GHG) reduction measures and actions in the County's Energy and Climate Action Plan (ECAP), and the applicable goals and objectives to reduce GHG emissions from the Santa Barbara County Association of Government's 2040 Regional Transportation Plan and Sustainable Communities Strategy.

Santa Barbara County Comprehensive Plan

The County's Comprehensive Plan is a long-range plan that serves as a guide for the physical development of unincorporated Santa Barbara County. The Comprehensive Plan is comprised of several topical parts or elements, including a Coastal Land Use Plan and Agricultural, Circulation, Conservation, Energy, Environmental Resources Management, Hazardous Waste, Housing, Land Use, Noise, Open Space, Seismic Safety and Safety, and Scenic Highways elements. The Comprehensive Plan also includes local community plans, including the OCP, which applies to Key Site 21.

The Comprehensive Plan includes goals, policies, and implementation measures that provide a general framework for County-wide development. Table 1 discusses the proposed project's consistency or inconsistency with the Comprehensive Plan goals, policies, actions, and development standards.

Table 1 Santa Barbara County Comprehensive Plan Policy Consistency

Goals, Policies, Actions, and Development Standards	Consistency Discussion
Land Use Element – Land Use Development Policies	
Policy 2. The densities specified in the Land Use Plan are maximums and may be reduced if it is determined that such reduction is warranted by conditions specifically applicable to a site, such as topography, geologic or flood hazards, habitat areas, or steep slopes. However, density may be increased under programs of the Housing Element.	**Consistent.** As described in Section 2, *Project Description*, buildout of Key Site 21 would result in 146 dwelling units. The OCP identifies the project site as Planned Residential Development, 150 unit maximum (PDR). Therefore, the proposed project would result in development within the allowable density in the OCP.
Policy 3. No urban development shall be permitted beyond boundaries of land designated for urban uses except in neighborhoods in rural areas.	**Consistent.** The project site is located within an Existing Developed Rural Neighborhood (EDRN) just outside of the urban boundary defined by the Orcutt Community Plan. Proposed residential development included in the project would occur on a site designated for urban uses.
Policy 4. Prior to issuance of a development permit, the County shall make the finding, based on information provided by environmental documents, staff analysis, and the applicant, that adequate public or private services and resources (i.e., water, sewer, roads, etc.) are available to serve the proposed development. The applicant shall assume full responsibility for costs incurred in service extensions or improvements that are required as a result of the proposed project. Lack of available public or private services or resources shall be grounds for denial of the project or reduction in the density otherwise indicated in the land use plan.	**Consistent.** As discussed in Section 4.7, *Fire Protection*, Section 4.12, *Public Services and Recreation*, and Section 4.14, *Water Resources and Flooding*, adequate fire and police protection, public school capacity, water supply, and wastewater service would be available for the proposed project, and impacts related to these services would be less than significant. As discussed in Section 4.13, *Transportation and Circulation*, public roadways are available to serve the proposed project. The proposed project was found to contribute to LOS F conditions at the Foxenwood Lane/Clark Avenue intersection, resulting in a significant cumulative impact. Mitigation (if feasible) will be identified to reduce cumulative impacts to this intersection to maintain the required LOS D. Mitigation may include retaining the existing geometry of Clark Avenue, improvements to the Foxenwood Lane/Clark Avenue intersection, or other site specific improvements approved by the County Public Works Department. As discussed in Section 4.12, *Public Services and Recreation*, the project's estimated construction and operational solid waste generation would exceed the County's thresholds. In compliance with Mitigation Measure PS/R-1, the applicant would be required to prepare and implement a Source Reduction and Solid Waste Management Plan that would reduce solid waste generation during the construction phase of the project and during project operation. Nevertheless, waste generated by the project may still exceed the County's solid waste thresholds for construction and operation. The approved Santa Maria Integrated Waste Management Facility is planned to be operational in 2020 and would alleviate the existing need for additional solid waste disposal capacity in the region. Despite the significant and unavoidable impact, the project would not conflict with policy to ensure adequate waste services are available.

Land Use Element – Hillside and Watershed Protection Policies	
Policy 1. Plans for development shall minimize cut and fill operations. Plans requiring excessive cutting and filling may be denied if it is determined that the development could be carried out with less alteration of the natural terrain. **Policy 2.** All development shall be designed to fit the site topography, soils, geology, hydrology, and any other existing conditions and be oriented so that grading and other site preparation is kept to an absolute minimum. Natural features, landforms, and native vegetation, such as trees, shall be preserved to the maximum extent feasible. Areas of the site which are not suited to development because of known soil, geologic, flood, erosion or other hazards shall remain in open space.	**Consistent.** The project would involve grading operations that would result in cut and fill of approximately 1,007,916 cubic yards (cy) of soil material. The proposed grading is planned to be balanced between the Hidden Canyon and Willow Creek neighborhoods. No fill material would be imported to or exported from Key Site 21, and no fill material would be placed in the undeveloped natural open space areas. In both neighborhoods, grading plans have been designed to minimize grading and site preparation operations by contouring slopes to provide smooth transitions between the graded areas and the adjacent natural land contours. Retaining walls outside of the building footprints would not exceed four feet in height. As discussed in Section 4.8, *Geologic Processes*, the project would require grading on slopes exceeding 20 percent for approximately 32 residential lots and approximately 11 road segments and would require grading on slopes exceeding 30 percent for 13 residential lots and six road segments. In addition, engineering designs for the project do not limit cut slope heights to 15 feet or lower. Slopes in excess of 15 feet in height as measured from the lowest finished grade would increase the potential for unstable hillsides, creating a potential for landslides and other soil stability hazards. Mitigation Measure GEO-1 would be required to reduce impacts resulting from locating development on unstable soils. Project grading activities would be subject to the County's grading ordinance, which requires a grading permit and an Erosion and Sediment Control Plan. Areas of the site which are not suitable for development are identified to remain as undeveloped open space.
Policy 3. For necessary grading operations on hillsides, the smallest practical area of land shall be exposed at any one time during development, and the length of exposure shall be kept to the shortest practicable amount of time. The clearing of land should be avoided during the winter rainy season and all measures for removing sediments and stabilizing slopes should be in place before the beginning of the rainy season. **Policy 4.** Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the project site in conjunction with the initial grading operations and maintained through the development process to remove sediment from runoff waters. All sediment shall be retained on-site unless removed to an appropriate dumping location. **Policy 5.** Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized as rapidly as possible with planting of native grasses and shrubs, appropriate non-native plants, or with acceptable landscaping practices.	**Consistent.** Project development would require preparation of a Storm Water Pollution Prevention Plan (SWPPP) that would include the implementation of sediment basins and other sediment control methods in the initial stage of construction in order to control sediment runoff; stabilization of exposed soils within one week of exposure; avoiding construction during the rainy season; stabilizing slopes; and controlling erosion.

Policy 6. Provisions shall be made to conduct surface water to storm drains or suitable watercourses to prevent erosion. Drainage devices shall be designed to accommodate increased runoff resulting from modified soil and surface conditions as a result of development. Water runoff shall be retained onsite whenever possible to facilitate groundwater recharge.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, the proposed project would be required to comply with OCP EIR Mitigation Measures FLD 3.1 through FLD 3.5, requiring fair share contribution for installation and maintenance of a regional retention basin and other design and maintenance requirements for regional retention basins, and the Santa Barbara County Flood Control District (SBCFCD) stipulation that post-development peak stormwater flows not exceed pre-development flows for 2-, 5-, 10-, 25-, 50-, and 100-year storm events. In accordance with these requirements, the proposed project would include on-site bio-retention facilities and Low Impact Design (LID) features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration.
Policy 7. Degradation of the water quality of groundwater basins, nearby streams, or wetlands shall not result from development of the site. Pollutants, such as chemicals, fuels, lubricants, raw sewage, and other harmful waste, shall not be discharged into or alongside coastal streams or wetlands either during or after construction.	**Consistent.** Storm water monitoring, Best Management Practices (BMP), implementation of erosion control measures, and implementation of spill prevention and containment measures would be required for the life of the project in compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements. Project construction activities would also be subject to the County's grading ordinance and applicable OCP development standards to minimize erosion and associated impacts to water quality. The proposed project would also conform to OCP Dev Std FLD-O-3.1 and FLD-O-3.2, which require the installation of sedimentation traps and other BMPs to prevent erosion and siltation of waterways.
Land Use Element – Streams and Creeks Policies	
Policy 1. All permitted construction and grading within stream corridors shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution.	**Consistent.** Storm water monitoring, BMPs, implementation of erosion control measures, and implementation of spill prevention and containment measures would be required for the life of the project in compliance with NPDES permit requirements. Project construction activities would also be subject to the County's grading ordinance and applicable OCP development standards to minimize erosion and associated impacts to water quality. The proposed project would also conform to OCP Dev Std FLD-O-3.1 and FLD-O-3.2, which require the installation of sedimentation traps and other BMPs to prevent erosion and siltation of waterways.
Land Use Element – Flood Hazard Area Policies	
Policy 1. All development, including construction, excavation, and grading, except for flood control projects and non-structural agricultural uses, shall be prohibited in the floodway unless off-setting improvements in accordance with federal regulations are provided. If the	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, according to FEMA Flood Insurance Maps (FIRMs), the entire project area is outside the 100-year and 500-year floodplain of Orcutt Creek. In addition, the project would be required to comply with OCP EIR

proposed development falls within the floodway fringe, development may be permitted, provided creek setback requirements are met and finished floor elevations are two feet above the projected 100-year flood elevation, and the other requirements regarding materials and utilities as specified in the Flood Plain Management Ordinance are in compliance.	Mitigation Measures FLD 3.1 through FLD 3.5, requiring fair share contribution to installation and maintenance for a regional retention basin and other design and maintenance requirements for regional retention basins, and the SBCFCD stipulation that post-development peak stormwater flows not exceed pre-development flows for 2-, 5-, 10-, 25-, 50-, and 100-year storm events. In accordance with these requirements, the project would include on-site bio-retention facilities and LID features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Compliance with existing design guidelines, applicable SBCFCD requirements for post-development peak stormwater flows and BMPs and maintenance requirements described in the Neighborhood Stormwater Control Plans would ensure that potential flooding impacts and impacts to on-site and off-site drainage would be less than significant.
Land Use Element – Historical and Archeological Sites Policies	
Policy 1. All available measures, including purchase, tax relief, purchase of development rights, etc., shall be explored to avoid development on significant historic, prehistoric, archaeological, and other classes of cultural sites. **Policy 2.** When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids impacts to such cultural sites if possible. **Policy 3.** When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate mitigation shall be required. Mitigation shall be designed to accord with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission. **Policy 4.** Off-road vehicle use, unauthorized collection of artifacts, and other activities other than development which could destroy or damage archaeological or other cultural sites shall be prohibited.	**Consistent.** As discussed in Section 4.5, *Cultural and Tribal Cultural Resources*, there are no known archaeological or other cultural resources on the project site. Adherence to Mitigation Measures CUL-1(a) and CUL-1(b) would reduce impacts associated with the potential to unearth previously undiscovered cultural resources during grading and construction to a less than significant level, and Mitigation Measure CUL-2 would ensure that previously unidentified cultural and tribal cultural resources would not be impacted during project construction.
Policy 5. Native Americans shall be consulted when development proposals are submitted which impact significant archaeological or cultural sites.	**Consistent.** Section 4.5, *Cultural and Tribal Cultural Resources*, details the Native American consultation efforts for the project. Pursuant to the requirements of AB 52 and SB 18, the County conducted Native American consultation for the proposed project to identify potential concerns or issues associated with Native American cultural resources within the project vicinity. As a result of Native American consultation for the project and because future development activities for the project have the potential to impact tribal cultural resources, Mitigation Measure CUL-2 would be required for the project.

Land Use Element – Parks/Recreation Policies	
Policy 1. Bikeways shall be provided where appropriate for recreational and commuting use.	**Consistent.** The proposed project would provide State Route (SR) 1 frontage improvements that include two paved 12-foot travel lanes, deceleration/turn lanes located at the new entrances to the Willow Creek and Hidden Canyon neighborhoods, and two paved 8-foot shoulders that would also serve as Class 3 bike lanes.
Policy 3. Future development of parks should emphasize meeting the needs of local residents.	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation*, the proposed project would provide on-site recreational components, including approximately 96.7 acres of undisturbed open space 29.8 acres of privately managed open space that would include a trail staging area, and public recreational trail that would be located along the eastern project boundary. In addition, the applicant would be required to pay Quimby Act park fees.
Policy 4. Opportunities for hiking and equestrian trails should be preserved, improved and expanded wherever compatible with surrounding uses.	**Consistent.** The proposed project would include a trail staging area and public recreational trail that would located along the eastern project boundary.
Land Use Element – Visual Resource Policies	
Policy 1. All commercial, industrial and planned developments shall be required to submit a landscaping plan to the County for approval.	**Consistent**. The proposed project would include preparation of a landscaping plan for review and approval by Planning and Development and the North County Board of Architectural Review. The project's landscaping plan will include all landscape specifications required by Mitigation Measures AES-1 through AES-4 and BIO-6 and must be reviewed and approved by the Planning and Development Department in coordination with a County-approved biologist, pursuant to Mitigation Measure BIO-3(c).
Policy 3. In areas designated as urban on the land use plan maps and in designated rural neighborhoods, new structures shall be in conformance with the scale and character of the existing community. Clustered development, varied circulation patterns, and diverse housing types shall be encouraged.	**Consistent**. The project site is located within the OCP area. The OCP provides a blueprint for the future development of the Orcutt community located in northern Santa Barbara County. The project site is located on Key Site 21, one of 45 designated "Key Sites" that were identified in the OCP as areas where future development would occur in the community. Key Site 21 is designated in the OCP as an Existing Developed Rural Neighborhood, an area within which development has occurred historically with lots smaller than those found in the surrounding Rural or Inner Rural Areas. The project site is zoned Planned Residential Development. The purpose of this zone district is to ensure comprehensively planned development of large acreage within designated urban areas intended primarily for residential use. The intent, in part, is to promote innovative residential design, allow a diversity of housing types, and provide recreational opportunities for both residents of the site and the public. The proposed project would provide 146 new residential units on Key Site 21, as anticipated by the County and in

	the OCP, and consistent with the policies and development standards set forth in the OCP. The housing types included in the project include 56 larger home sites within the Hidden Canyon neighborhood with lot sizes averaging 18,000 square feet. The Willow Creek neighborhood would be higher in density and would provide 90 lots of an average size of 11,375 square feet.
Policy 4. Signs shall be of size, location, and appearance so as not to detract from scenic areas or views from public roads and other viewing points.	**Consistent.** In order to ensure that proposed signage is sized, located and designed so as not to detract from scenic areas or views from public roads and other viewing points, the project will be conditioned to require review and approval by the County Board of Architectural Review, including approval of all signs proposed for the new Willow Creek and Hidden Canyon neighborhoods prior to implementation of the project.
Policy 5. Utilities, including television, shall be placed underground in new developments in accordance with the rules and regulations of the California Public Utilities Commission, except where cost of undergrounding would be so high as to deny service.	**Consistent**. All utilities installed for the proposed project would be installed underground, in accordance with the rules and regulations of the California Public Utilities Commission and the project's conditions of approval.
Noise Element	
Policy 1. In the planning of land use, 65 dB Day-Night Average Sound Level should be regarded as the maximum exterior noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs. **Policy 5.** Noise-sensitive uses proposed in areas where the Day-Night Average Sound Level is 65 dB or more should be designed so that interior noise levels attributable to exterior sources do not exceed 45 dB LDN when doors and windows are closed. An analysis of the noise insulation effectiveness of proposed construction should be required, showing that the building design and construction specifications are adequate to meet the prescribed interior noise standard. **Policy 6.** Residential uses proposed in areas where the Day-Night Average Sound Level is 65 dB or more should be designed so that noise levels in exterior living spaces will be less than 65 dB LDN. An analysis of proposed projects should be required, indicating the feasibility of noise barriers, site design, building orientation, etc., to meet the prescribed exterior noise standard.	**Consistent.** As described in Section 4.11, *Noise,* the project would result in potentially significant impacts related to construction noise affecting patrons of the RMGC in the vicinity of the project site. Mitigation Measures N-1(a) and N-1(b) would be required to reduce overall construction noise and prevent nighttime construction noise, and would ensure that average daily construction noise levels would not exceed the County of Santa Barbara's maximum acceptable level of 65 dBA CNEL. Noise generating construction operations would be limited to 8:00 a.m. to 5:00 p.m. Monday through Friday. The proposed project would not result in significant impacts related to exposure of new residences to roadway noise from Highway 1 as all proposed development is located outside of the 65 dB(A) CNEL noise contour identified in the OCP. As a result, the proposed residences would not be exposed to exterior noise levels in excess of the County's exterior noise standard of 65 dBA CNEL, or interior noise levels that would exceed the County's interior noise standard of 45 dBA CNEL.
Circulation Element	
Roadway Standards: a. A project that would contribute ADTs to a roadway where the Estimated Future Volume does not exceed the policy capacity would be considered consistent with this section of this Element.	**Consistent.** As discussed in Section 4.13, *Transportation and Circulation*, the County's thresholds of significance for traffic impacts were used to determine if the project would result in potential traffic impacts on area roadways. The applicable standards from the OCP were applied to evaluate the project's consistency with County policies for roadway segments. Based on these standards, the project

b. For roadways where the Estimated Future Volume exceeds the policy capacity but does not exceed the Acceptable Capacity, a project would be considered consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway was less than or equal to 2 percent of the remaining capacity of that roadway or 40 ADT, whichever is greater.

c. For roadways where the Estimated Future Volume exceeds the acceptable capacity but does not exceed Design Capacity, a project would be considered consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway does not exceed 25 ADT.

d. For roadways where the Estimated Future Volume exceeds the design capacity, a project would be consistent with this section of this Element only if the number of ADTs contributed by the project to the roadway does not exceed 10 ADT.

was determined to have less than significant project-level and cumulative impacts on area roadway segments.

Intersection Standards:

1. Projects contributing PHTs (peak hour trips) to intersections that operate at an Estimated Future Level of Service that is better than LOS C shall be found consistent with this section of this Element unless the project results in a change in V/C (volume/capacity) ratio greater than 0.20 for an intersection operating at LOS A or 0.15 for an intersection operating at LOS B.

2. For intersections operating at an Estimated Future Level of Service that is less than or equal to LOS "C," a project must meet the following criteria in order to be found consistent with this section of this Element.

For intersections operating at an Estimated Future Level of Service C, no project must result in a change of V/C ratio greater than 0.10.

For intersections operating at an estimated future Level of Service D, no project shall contribute 15 or more Peak Hour Trips.

For intersections operating at an Estimated Future level of Service E, no project shall contribute 10 or more Peak Hour Trips.

For intersections operating at an Estimated Future Level of Service F, no project shall contribute 5 or more Peak Hour Trips.

3. Where a project's traffic contribution does not result in a measurable change in the V/C ratio at an intersection but does result in a finding of inconsistency with Intersection Standard 2 above, intersection improvements that are acceptable to the Public Works Department shall be required in order to make a finding of consistency with these intersection standards. A measurable change in V/C ratio shall be defined as a change greater than or equal to 0.01. *(amended by 93-GP-12)*

Consistent. As discussed in Section 4.13, *Transportation and Circulation*, the County's thresholds of significance for traffic impacts were used to determine if the project would result in potential traffic impacts on area intersections. In 2012 the County Board of Supervisors adopted a resolution changing the applicable LOS standard for all Clark Avenue roadway segments and intersections between Blosser Road on the west and Foxenwood Lane on the east to LOS D (County Board of Supervisors Resolution 12-294). Based on these standards, the project was determined to have less than significant project-level impacts on study area intersections. The 1995 OCP EIR identified significant and unavoidable (Class I) cumulative impacts to traffic resulting from full build-out (10-year) of the OCP. The County Board of Supervisors adopted a statement of overriding considerations for these Class I impacts. The OCP EIR anticipated that up to 150 residential units would be constructed on the subject lots within Key Site 21; therefore, this amount of development has been anticipated under full-build out of the OCP.

The proposed project was found to contribute to LOS F conditions at the Foxenwood Lane/Clark Avenue intersection, resulting in a significant cumulative impact. Mitigation (if feasible) will be identified to reduce cumulative impacts to this intersection to maintain the required LOS D. Mitigation may include retaining the existing geometry of Clark Avenue, improvements to the Foxenwood Lane/Clark Avenue intersection, or other site specific improvements approved by the County Public Works Department.

4. Where a project's traffic contribution does result in a measurable change in V/C ratio and also results in a finding of inconsistency with Intersection Standards 1 or 2, above, intersection improvements that are sufficient to fully offset the change in V/C ratio associated with the project shall be required in order to make a finding of consistency with these intersection standards. *(amended by 93-GP-12)* 5. The above intersection standards shall also apply to all projects which generate Peak Hour Trips to intersections within incorporated cities that are operating at levels of service worse than those permitted by the City's Circulation Element.	
Policy A. The roadway classifications, intersection levels of service, and capacity levels adopted in this Element shall apply to all roadways and intersections within the unincorporated area of the County, with the exception of those roadways and intersections located within an area included in an adopted community or area plan. Roadway classifications, intersection levels of service, and capacity levels adopted as part of any community or area plan subsequent to the adoption of this Element shall supersede any standards included as part of this Element.	**Consistent.** The proposed project is located within the OCP area. As discussed in Section 4.13, *Transportation and Circulation*, the OCP Standards for Determination of Project Consistency – Consistency Standards for Primary Roadways were applied to evaluate the proposed project's consistency with County policies for roadway segments. Table 2 in this section describes the project's consistency with the applicable OCP goals, policies, actions, and development standards.
Policy C. The County shall continue to develop programs that encourage the use of alternative modes of transportation, including, but not limited to, an updated bicycle route plan, park and ride facilities, and transportation demand management ordinances.	**Consistent**. The Orcutt Transportation Improvement Plan (OTIP) identifies long-term public improvements to roadways and alternative transportation facilities targeted to provide for acceptable levels of service on roadways and intersections within the Orcutt Planning Area. The OTIP requires fees for transportation impacts caused by new development in the Orcutt Planning Area. These fees may be used for roads, pedestrian facilities, transit and bicycle facilities. The project will be conditioned to be required to pay fees to offset project contributions to cumulative traffic impacts. This includes contribution to the project's fair share of offsite improvements in an amount determined by the County Public Works Transportation Division, based on adopted fee schedules at the time of payment.
Housing Element	
Policy 1.1. Promote new housing opportunities adjacent to employment centers, and the revitalization of existing housing to meet the needs of all economic segments of the community, including extremely low income households, while bolstering the County's rural heritage and supporting each unincorporated community's unique character. **Policy 2.1.** Encourage housing that meets the requirements of special needs households, as identified per State law, and promotes housing diversity (i.e., size, type, tenure, location, and affordability levels). **Policy 3.1.** Promote equal housing opportunities for all	**Consistent.** The project site is located within the OCP area. The OCP provides a blueprint for the future development of the Orcutt community located in northern Santa Barbara County. The project site is located on Key Site 21, one of 45 designated "Key Sites" that were identified in the OCP as areas where future development would occur in the community. Key Site 21 is designated in the OCP as an Existing Developed Rural Neighborhood, an area within which development has occurred historically with lots smaller than those found in the surrounding Rural or Inner Rural Areas. The project site is zoned Planned Residential Development. The purpose of this zone district is to ensure comprehensively planned

persons in all housing types (ownership and rental, market-rate and assisted).	development of large acreage within designated urban areas intended primarily for residential use. The intent, in part, is to promote innovative residential design, allow a diversity of housing types, and provide recreational opportunities for both residents of the site and the public. The project site is not located adjacent to an employment center. However, the project site is located within close proximity to Old Town Orcutt which may provide employment opportunities. The proposed project would provide 146 new residential units on Key Site 21, as anticipated by the County and in the OCP, and consistent with the policies and development standards set forth in the OCP. The housing types included in the project include 56 larger home sites within the Hidden Canyon neighborhood with lot sizes averaging 18,000 square feet. The Willow Creek neighborhood would be higher in density and would provide 90 lots of an average size of 11,375 square feet. The County's Regional Housing Needs Allocation (RHNA) for the 2014-2022 RHNA projection period is 661 units. To plan for an adequate housing supply for all economic segments of the population, the RHNA is separated into four broad income categories: 159 extremely low/very low-income units, 106 low-income units, 112 moderate-income units, and 284 above moderate- income units. Appendix B of the 2015-2023 Housing Element includes an inventory of housing sites that are zoned and suitable to accommodate the RHNA within all income categories. The proposed project is part of the land inventory with a potential housing production of 146 above-moderate income units. The proposed residences would be required to meet ADA requirements relative to access. Payment of standard County in-lieu housing fees would contribute to the construction of affordable units throughout the Santa Maria HMA and would meet the Project's affordable housing requirement.
Seismic Safety and Safety Element – Geologic and Seismic Goals	
Policy 1. The County shall minimize the potential effects of geologic, soil, and seismic hazards through the development review process.	**Consistent.** As discussed in Section 4.8, *Geological Resources*, the site is subject to seismic groundshaking and soil stability hazards. The project would be required to comply with all applicable provisions of the California Building Code to ensure that impacts from groundshaking would be less than significant. In addition, Mitigation Measure GEO-3 is also required to ensure all recommendations contained in the Soils Engineering Report and Engineering Geology Investigation (are fully implemented. Of the project would locate residential lots and roadway segments on slopes exceeding slopes exceeding 20 and 30 percent gradients. As a result, Mitigation Measure GEO-1 would be required to reduce potential impacts resulting from cut slopes exceeding 15 feet in height. Measures to minimize potential geologic, soil, and seismic hazards would require review and approval by the County prior to implementation of the project.

Policy 3. The County shall ensure compliance with State seismic and building standards in the evaluation, design, and siting of critical facilities, including police and fire stations, school facilities, hospitals, hazardous material manufacture and storage facilities, bridges, large public assembly halls, and other structures subject to special seismic safety design requirements pursuant to the California Code of Regulations, Title 24, Part 2 California Building Code.	**Consistent.** All components of the project, including compliance with local, State, and federal regulations, would be reviewed and approved by the Planning and Development Department in coordination with a County-approved resource specialist prior to implementation of the project.

Orcutt Community Plan

The OCP applies to the unincorporated area of Orcutt. The OCP identifies growth projections and provides for orderly development to meet the full spectrum of housing, commercial and industrial space, roads, public facilities, and amenities for the community. Table 2 discusses the project's consistency with the following OCP policy areas: Land Use Development, Fire Protection, Parks, Recreation Trails and Open Space, Police Protection, Schools, Sewer/Wastewater, Transportation, Water, and Visual Resources.

Table 2 Orcutt Community Plan Policy Consistency

Goals, Policies, Actions, and Development Standards	Consistency Discussion
Land Use	
Policy LU-O-3. The County shall require that adequate resources and service capacity are available to accommodate the growth identified within this Plan.	**Consistent.** As discussed in Section 4.7, *Fire Protection*, Section 4.12, *Public Services and Recreation*, and Section 4.14, *Water Resources and Flooding*, adequate fire and police protection, public school capacity, water supply, and wastewater service would be available for the proposed project, and impacts related to these services would be less than significant. As discussed in Section 4.12, *Public Services and Recreation*, the proposed project's estimated construction and operational solid waste generation would exceed the County's thresholds. In compliance with Mitigation Measure PS/R-1, the applicant would be required to prepare and implement a Source Reduction and Solid Waste Management Plan that would reduce solid waste generation during the construction phase of the project and during project operation. Nevertheless, waste generated by the project may still exceed the County's solid waste thresholds for construction and operation. The approved Santa Maria Integrated Waste Management Facility is planned to be operational in 2020 and would alleviate the existing need for additional solid waste disposal capacity in the region. Despite the significant and unavoidable impact, the project would not conflict with policy to ensure adequate waste services are available, and the project would be consistent with this policy.
Policy LU-O-5. To improve fiscal balance in both the development, operations, and maintenance of public infrastructure, the County shall pursue establishment of appropriate funding mechanisms to ensure that	**Consistent.** The owner/applicant would be required to pay the project's fair share of fees for parks, fire, and police protection services, flood control, roads, and water in accordance with the County's development fee

development pays its "fair share" of public infrastructure costs.	schedule.
Policy LU-O-6. The Orcutt Urban/Rural Boundary shall separate principally urban land uses and those which are rural and/or agricultural in nature. This boundary shall represent the maximum extent of the Orcutt urban area and the Urban/Rural Boundary shall not be extended until existing inventories of vacant land within the urban area are nearing buildout. Boundary adjustments shall be approved only as part of a major Community Plan update.	**Consistent.** The project site is located within an EDRN just outside of the urban boundary defined by the OCP. The proposed project site is located within an EDRN that has been identified in the OCP for urban development of up to 150 single family units. The project does not propose to augment the existing urban boundary.
Policy LU-O-8. In order to preserve the semi-rural character of Orcutt, protect natural resources, and avoid development in hazardous areas, the County shall provide for large useable areas of (public or private) open space within the community. Appropriate planning tools should be explored and adopted which provide for the clustering or relocation of development from hazardous, environmentally sensitive or visually prominent areas, or other sites which are deemed unsuitable for development, to areas appropriate for development.	**Consistent.** The project would include 96.7 acres of undisturbed open space 29.8 acres of privately managed open space in the two proposed neighborhoods. These undisturbed open spaces comprise approximately 51 percent of the overall project site area. The project also includes approximately 29.8 acres of privately managed open space that includes landscape, trailhead, trails, and fuel modification areas. The proposed trail staging area and trail would implement the OCP-designated trail RM-1 within the project site (identified in the OCP Area Parks, Recreation, and Trails Maps) and would be consistent with the OCP Key Site 21 DevStd KS21-5.
Residential	
Policy LUR-O-1. Consistent with the Housing Element, the County shall encourage the provision of a mix of affordable units on parcels within the Orcutt Planning Area.	**Consistent.** The proposed project would provide 146 new residential units on Key Site 21, as anticipated by the OCP. The County's Regional Housing Needs Allocation (RHNA) for the 2014-2022 RHNA projection period is 661 units. To plan for an adequate housing supply for all economic segments of the population, the RHNA is separated into four broad income categories: 159 extremely low/very low-income units, 106 low-income units, 112 moderate-income units, and 284 above moderate- income units. Appendix B of the 2015-2023 Housing Element includes an inventory of housing sites that are zoned and suitable to accommodate the RHNA within all income categories. The proposed project is part of the land inventory with a potential housing production of 146 above-moderate income units. Payment of standard County in-lieu housing fees would contribute to the construction of affordable units throughout the Santa Maria HMA and would meet the Project's affordable housing requirement.
Policy LUR-O-2. Future growth and development shall occur in a manner which minimizes construction related impacts on the community.	**Consistent.** As discussed in Sections 4.2, *Agricultural Resources*, 4.3, *Air Quality*, 4.4, *Biological Resources*, 4.5, *Cultural and Tribal Cultural Resources*, 4.8, *Geologic Processes*, 4.9, *Greenhouse Gas Emissions*, 4.10, *Land Use*, 4.11, *Noise*, and 4.14, *Water Resources and Flooding*, project construction activities would result in potentially significant impacts. Regulatory requirements and mitigation measures required for the project and described in each of these sections would reduce potential construction impacts to less than significant levels. Implementation of these applicable regulatory

	requirements and measures would ensure that the project would be consistent with this policy.
Policy LUR-O-6. In order to provide community cohesiveness, new neighborhoods should be designed to provide circulation, pedestrian, bicycle and public transportation linkage to existing neighborhoods, schools, parks, and commercial areas.	**Consistent.** The proposed Hidden Canyon neighborhood would include a public hiking trail to provide access from the residential development and SR 1 to neighboring foothills as well as the Orcutt regional trail system. The project would also include three new entry drives off SR 1 for access to and from the project site. The Willow Creek neighborhood improvements also include gated secondary access at the public golf course parking lot for emergency personnel and residents. Frontage improvements to SR 1 would include two paved eight-foot shoulders that would also serve as Class 3 bike lanes. With implementation of these components of the project, the project would be consistent with this policy.
Policy LUR-O-7. County planning and maintenance efforts shall support development of safe, clean residential areas.	**Consistent.** Project Covenants, Conditions, and Restrictions (CC&Rs) would contain requirements for maintenance of private residential lots and common recreational and open space areas. The project does not include hazardous transportation design elements or features that would become a potential safety problem, or otherwise create an unsafe situation. Therefore, the project would be consistent with this policy.
Agricultural and Rural	
Policy LUA-O-2. Development in Orcutt shall be compatible with adjacent or nearby agricultural lands.	**Consistent.** As discussed in Section 4.2, *Agricultural Resources*, the increase in the number of residents in the area and new accessible pedestrian pathways, bike paths, and roadways would increase public access near existing agricultural areas, increasing the potential for conflicts, such as vandalism to farm equipment or fencing, and theft of crops at adjacent agricultural uses. These effects can result in direct economic impacts to agricultural operations, potentially impacting the overall economic viability of continued agricultural operations. The project includes a 200-foot wide agricultural buffer along the eastern and western edges of the proposed development area between the planned residential development and existing cultivated agricultural fields located on adjacent parcels to the east and west. The project also includes a 100-foot buffer along the eastern, western, and southern edges of the proposed development area between the planned residential development and existing grazing lands. No buildings or structures would be permitted in the agricultural buffer areas. These buffers would reduce and/ or avoid noise, dust, light impacts, odors, chemical use, and pesticide drift to new residential uses on the project site as well limit public access that may result in vandalism to farm equipment or fencing, and theft of crops at adjacent agricultural uses. Ultimately, these buffers would serve to limit potential conflicts between residential development on the project site and the adjacent lands zone for agricultural uses and under Williamson Act contract. In addition, the project would be

	required to implement SBCAPCD required dust control measures during earthmoving activities to ensure adjacent agricultural operations are not impacted by ongoing construction. Development on the project site would also be required to comply with the County's Right to Farm Ordinance, to protect agricultural land uses from conflicts with non-agricultural land uses that may result in financial hardship to agricultural operators or the termination of their operation by notifying prospective purchasers and residents of property adjacent to or near agricultural operations of the inherent problems, including sounds, odors, dust, and chemicals associated with such purchases or residing in such areas.
DevStd LUA-O-2.1. Fencing, berming and/or landscaping shall be installed along property lines or across ends of street stubs contiguous to agricultural and/or permitted oil operations unless a waiver to the satisfaction of Planning & Development is obtained from the adjacent agriculturist(s) and property owner(s), and/or operators. Fencing, berming and/or landscaping shall be designed, installed, and maintained to protect agricultural land and permitted oil operations from effects of residential development.	**Consistent.** Fencing would be installed in the proposed development areas in accordance with the Specific Plan. Rear and side yard fences would be constructed of wood fence panels, vinyl, or composite fencing. Rear and side yard fences on residential home sites adjoining the public golf course or open space areas may be constructed of wrought iron, tubular steel, wood rail, or similar open fencing.
DevStd LUA-O-2.2. Consistent with the County's adopted Right to Farm Ordinance, a buyer beware notification shall be recorded on a separate information sheet with the final tract and/or parcel maps of properties within 1,000 feet of agriculturally zoned land. The notification shall inform the buyer that: The adjacent property is zoned for agriculture and is located in an area that has been planned for agricultural uses, including permitted oil development, and that any inconvenience or discomfort from properly conducted agricultural operations, including permitted oil development, shall be allowed consistent with the intent of the Right to Farm Ordinance. For further information, contact Santa Barbara County Planning and Development.	**Consistent.** The project would comply with the requirements of the County's Right to Farm Ordinance, including recordation of a buyer beware notification for properties proposed within 1,000 feet of agriculturally zoned land.
DevStd LUA-O-2.3. All new urban and EDRN development which borders agriculturally designated lands shall include a minimum 100-foot buffer between structures and agricultural land and shall include appropriate landscaping, including but not limited to the planting of hedges and/or windrows with a sufficient density of trees and shrubs to reduce noise, odor, dust or chemical effects associated with the agricultural operations. This buffer is a minimum adjacent to lighter agricultural uses (such as grazing) and should be adjusted upward if the adjacent agricultural operation is considered more intensive (such as strawberry cultivation or oil development).	**Consistent.** As discussed in Section 4.2, *Agricultural Resources*, the project includes a 200-foot wide agricultural buffer along the eastern and western edges of the proposed development area between the planned residential development and existing cultivated agricultural fields located on adjacent parcels to the east and west. The project also includes a 100-foot buffer along the eastern, western, and southern edges of the proposed development area between the planned residential development and existing grazing lands. No buildings or structures would be permitted in the agricultural buffer areas. These buffers would limit potential conflicts between residential development on the project site and the adjacent lands zone for agricultural uses and under Williamson Act contract. In addition, the project would be required to implement SBCAPCD required dust control measures during

	earthmoving activities to ensure adjacent agricultural operations are not impacted by ongoing construction.
Fire Protection	
Policy FIRE-O-2. Fire hazards in Orcutt shall be minimized in order to reduce the cost of/need for increased fire protection services and to protect the natural resources in undeveloped open space areas**.** **DevStd FIRE-2.1.** Development within or adjacent to high fire hazard areas should include the use of fire prevention measures such as perimeter roads, trails, Class A or B roofs, adequate access to the urban/rural interface and inclusion of structural setbacks per DevStd BIO 1.7. Fencing within the structural setback shall be comprised of fire-resistant material to minimize fire hazards.	**Consistent**. As discussed in Section 4.7, *Fire Protection,* the project site is located within the SBCFD's five-minute response time area. Standard Fire Department requirements such as road naming requirements, address number standards, hydrant requirements, and review of site circulation and design of secondary internal Emergency Vehicle Access (EVA) roads would apply to the project and would reduce the risk to people and structures from wildland fires. To comply with Standard Fire Department requirements, the project would also include emergency access roads that would provide the 24-foot minimum width required by SBCFD. Compliance with SBCFD requirements, applicable OCP development standards, and Conditions of Approval pertaining to fire management would avoid potential impacts to people or structures associated with wildland fire hazards. In addition, development on the project site would be subject to payment of the Orcutt Planning Area fire mitigation fee to ensure that the potential environmental impacts to fire protection services would be less than significant.
DevStd FIRE-2.2. The County shall require two routes of ingress and egress for development unless waived by the Fire Department.	**Consistent** Two routes of ingress and egress are provided for each of the neighborhoods. The project includes a secondary emergency access road from the Willow Creek Neighborhood to SR 1, and would utilize the existing RMGC entrance road. A secondary access road would also be constructed from SR 1 to the eastern edge of the Hidden Canyon Neighborhood.
DevStd FIRE-2.3. Orcutt foothill development shall be protected by water storage tanks connected to an existing water purveyor or private water supplies.	**Consistent.** As discussed in Section 4.7, *Fire Protection*, the proposed development would be required to comply with this development standard and comply with the firewater storage requirements of OCP EIR Mitigation Measure FIRE-9.
Policy FIRE-O-3. The use of fuelbreaks in Orcutt shall be minimized, and where fuelbreaks are necessary they shall be sited to minimize disruption of significant natural resources. **DevStd FIRE-3.1.** Fuelbreaks should incorporate perimeter roads and yards to the greatest extent feasible. **DevStd FIRE-3.2.** To the maximum extent feasible, fuelbreaks shall not be constructed through riparian or wetland areas or result in the removal of healthy specimen oaks. Within fuelbreaks, treatment of oak trees shall be limited to limbing the branches up to a height of 6 feet, removing dead wood, and mowing the understory. Where specimen oaks have multiple trunks, all trunks shall remain.	**Consistent.** The project does not incorporate fuelbreaks. Standard Fire Department requirements such as road naming requirements, address number standards, hydrant requirements, and review of site circulation and design of secondary internal Emergency Vehicle Access (EVA) roads would apply to the project and would reduce the risk to people and structures from wildland fires. To comply with Standard Fire Department requirements, the project would also include emergency access roads that would provide the 24-foot minimum width required by SBCFD. Compliance with SBCFD requirements, applicable OCP development standards, and Conditions of Approval pertaining to fire management would avoid potential impacts to people or structures associated with wildland fire hazards. In addition, development on the project site would be subject to payment of the Orcutt Planning Area

	fire mitigation fee to ensure that the potential environmental impacts to fire protection services would be less than significant.
Park, Recreation, Trails, and Open Space	
Policy PRT-O-1. Diverse passive and active recreational activities shall be developed in Orcutt.	**Consistent.** The project would include approximately 96.7 acres of undisturbed open space 29.8 acres of privately managed open space that would include a trail staging area, and public recreational trail that would be located along the eastern project boundary. The proposed staging area and trail would implement the OCP-designated trail RM-1 within the project site (identified in the OCP Area Parks, Recreation, and Trails Maps) and would be consistent with the OCP Key Site 21 DevStd KS21-5.
Policy PRT-O-3. Regional retention basins shall serve a dual flood control/recreational use where feasible and appropriate given flood control constraints and appropriate levels of natural resource protection.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, the OCP EIR identified measures that would minimize potential hydrological impacts, including fair share contribution to installation and maintenance for a regional retention basin and other design and maintenance requirements for regional retention basins (FLD 3.1 through 3.5). The Central Coast RWQCB has since prohibited runoff from being managed on a regional level and requires that runoff be managed on-site for each approved project. The project includes on-site bio-retention facilities and Low Impact Design (LID) features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Excess runoff would follow the historical drainage course that runs south-to-north along the center of the project site area. These bio-retention facilities and LID features would provide for resource protection on the site.
Policy PRT-O-4. The County Park Department and other agencies or groups pursuing implementation of the trail system shall use the Orcutt Multiple Use Trails Plan and its Trail Siting and Design Guidelines to guide future trail development and implementation. **DevStd PRT-O-4.1.** Planning & Development and the County Park Department shall implement the Orcutt Multiple Use Trails Plan, including the Trail Siting Guidelines, by requiring, to the maximum extent feasible, development projects to dedicate, and where appropriate, construct designated trails. The County shall also pursue other methods to acquire and construct the trail system, including the use of grants and community volunteers. **DevStd PRT-O-4.2.** Development shall comply with the Trail Siting Guidelines as set forth in the Orcutt Multiple Use Trails Plan. **DevStd PRT-O-4.3.** Development on sites with identified	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation*, the proposed Comprehensive Plan Amendment would include relocation of a trail staging area from SR 1 to the proposed Hidden Canyon neighborhood development area. The project would also include a public recreational trail that would located along the eastern project boundary. The terminus of the trail would be at the access road for the Hidden Canyon Neighborhood subterranean water tank, approximately 750 feet north of the project's southern boundary. The Hidden Canyon tentative tract map includes an easement to the remaining 750 feet of trail corridor extending to the southeast corner of the project boundary. The Santa Barbara County Community Services Department, Park Division would be responsible for installing the balance of the trail at a future date as part of an overall project to extend the trail on the adjacent parcel to the south (Garciacelay 2018). The proposed staging area and trail would implement the OCP-designated trail RM-1 within the project site (identified in the OCP Area Parks,

trail corridors (Figure 14 in the OCP) shall include, where appropriate, the construction and assurance of the fitness of designated trails for two years, at which time the County Park Department would assume maintenance responsibility. Where immediate construction is not required, a construction bond shall be required.	Recreation, and Trails Maps) and would be consistent with the OCP Key Site 21 DevStd KS21-5. These trails would be constructed by the applicant and dedicated to the public.
DevStd PRT-O-4.4. Trails should cross primary, and where appropriate secondary, roadways at controlled intersections. Trails located within an urban area may be included within the sidewalk system where appropriate. Trails in natural undeveloped open space areas, except Class I bikeways and emergency access routes, shall be limited to 6 feet in width.	**Consistent.** The proposed on-site trail system would not cross primary or secondary roadways; however, the proposed on-site trail system would connect to regional trails and develop future potential trail connections that may cross primary or secondary roadways at controlled intersections in accordance with this development standard.
Policy OS-O-3. Private open space within designated open space corridors shall be sited, designed, and managed to protect the natural resources and/or recreation potential of these corridors, consistent with the Open Space, Park, Recreation, & Trails, and Biological Resources of the OCP. **DevStd OS-0-3-3.1.** Where lands within open space corridors remaining private open space, at the time of discretionary development approval the County should consider acquiring open space easements or using other mechanisms to ensure management of the natural resources in these corridors consistent with the goals of the Open Space Plan. **Policy OS-O-4.** Development adjacent to, or within designated open space areas, shall be sited and designed to protect and enhance the natural resources of these areas, and accommodate appropriate recreation opportunities as identified in the Parks, Recreation and Trails section of this Plan.	**Consistent**. The project would include 96.7 acres of undisturbed open space 29.8 acres of privately managed open space that would include a trail staging area, and public recreational trail that would be located along the eastern project boundary. These areas would be designed to maximize natural resource protection and passive recreational use consistent with the Open Space, Park, Recreation & Trails and Biological Resources sections of the OCP, specifically DevStd PRT-O-4.1 and DevStd PRT-O-4.3, which require development on sites with identified trail corridors to construct and maintain for two years designated trails indicated in the Orcutt Multiple Use Trails Plan and DevStd KS21-5, which requires the developer to dedicate an easement for and construct a public staging area and hiking trail along the east side of the site boundary. The project includes an Open Space Management Plan that describes requirements for future management of on-site open space areas. The proposed internal open space area would remain in private ownership. The County could consider acquiring the open space as an easement or ensuring its ongoing maintenance through the recordation of CC&Rs. As the proposed project does not conflict with this development standard, it would be consistent.
DevStd OS-O-4.1. Prior to approval for any development within or adjacent to an open space area, a determination must be made that the proposed development is consistent with all applicable open space policies of the OCP, the OCP Open Space Map, as well as the regulations of the base zone district.	**Consistent.** The project does not include any components that would conflict with the applicable open space policies of the OCP, the OCP Open Space Map, as well as the regulations of the base zone district.
DevStd OS-O-4.2. Designated open space boundaries may be subject to minor adjustments inward or outward from the designated open space area on a case-by-case basis in order to allow for substantial improvements in project design, enhance fire safety buffers and fuel management zones, to protect visual qualities from and of adjacent open space areas, or to include biological historic or archaeological sites. The OCP, EIR and other available data shall be used in determining the location, width, and	**Consistent.** The project is consistent with the OCP Open Space Map and would not modify open space boundaries. The proposed multi-purpose trail and detention basins are uses similar to those envisioned in the OCP.

extent of the open space boundary adjustment. Decision makers shall make a determination that such a minor boundary adjustment would be consistent with the overall goals of the Open Space Plan and Biological/History/Archaeology policies, and would avoid disruption of significant natural resources and recreation opportunities located within designated open space areas.	
DevStd OS-O-4.3. No structures shall be located within a designated open space area with the exception of: related structures necessary for the provision of active and passive recreation opportunities that would not adversely affect open space areas, and flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety (including retention basins). Culverts, crossings, roads, pipelines, fences, and bridges may be permitted when no alternative route or location is feasible, or where other constraints or site design considerations (e.g. public safety) would require such structure.	**Consistent.** The project does not include development of any structures within the designated open space areas. The open space areas would be left undisturbed with the project.
Policy OS-O-5. The County shall encourage public use of trails and recreation facilities within designated open space areas consistent with protection of natural resources. Such public trails and recreation facilities shall be sited and designed to reduce conflicts with adjacent private property through use of unobtrusive fencing, landscape screening, appropriate setbacks, signage, etc.	**Consistent.** The proposed project would locate passive public recreation trails within the open space area. The trails would be passive in nature and would not include paving or obtrusive fencing. The trails would be designed to blend into the landscape and would not warrant landscape screening. As discussed in Section 4.2, *Agricultural Resources*, the project includes a 200-foot wide agricultural buffer along the eastern and western edges of the proposed development area between the planned residential development and existing cultivated agricultural fields located on adjacent parcels to the east and west. The project also includes a 100-foot buffer along the eastern, western, and southern edges of the proposed development area between the planned residential development and existing grazing lands.
Policy OS-O-6: The County should acquire the open space lands prioritized for public acquisition through dedication by working with property owners and interested groups, or through purchase. Where dedication is required, the County shall offset fees as required. If dedication is not required, the County may consider purchase, use of the TDC program or permitting the property to remain as private open space, consistent with the standards of this plan for natural resource protection and provision of passive and active recreation opportunities.	**Consistent**. The proposed project includes 96.7 acres of undisturbed open space 29.8 acres of privately managed open space. The County could consider acquiring the remaining private open space areas as an easement, but these are not located within the area designated by the OCP as open space that should be dedicated to the public.
Police Protection	
Action PP-O-1.6. P&D shall give the Sheriff Department the opportunity to review development projects with substantial open space to determine the adequacy of public safety measures.	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation*, the proposed project includes the development of a public trail within the proposed private open space area. Consistent with standard County policy, the Sheriff's Department would have the opportunity to

	review the proposed development to ensure the adequacy of public safety measures.
Resource Recovery	
Policy RR-O-1. Resource conservation and recovery shall be implemented in Orcutt to divert the waste stream from area landfills to the maximum extent feasible. **Action RR-O-1.1.** The County, in conjunction with the local waste hauler, shall continue to encourage a residential, commercial, and industrial recycling program throughout the Orcutt Planning Area, including yard waste collection, composting and conservation programs. **DevStd RR-O-1.4.** Developers shall provide recycling bins at all construction sites, where collection of currently acceptable recyclable construction materials could be accommodated. **Action RR-O-1.7.** To the greatest degree feasible, in new development of 20 units or greater, the developer shall work with the local recycling service to ensure that curbside recycling pick-up service is provided.	**Consistent.** As described in Section 4.12, *Public Services and Recreation,* the project would be subject to the County's waste reduction and recycling requirements. County waste characterization studies estimate that implementation of a Source Reduction and Recycling element (SRRE) program can attain up to 50 percent reduction in the solid waste stream. Compliance with these requirements would reduce the project's demand on solid waste services and facilities by up to 208 tons per year. The project would also be required to implement Mitigation Measure PS/R-3, requiring preparation and implementation of a source reduction and solid waste management plan, to reduce solid waste generation during the construction phase of the project and during project operation.
Policy RR-0-2. The County shall strive to ensure that adequate solid waste services are available to accommodate expected growth in Orcutt.	**Consistent.** As described in Section 4.12, *Public Services and Recreation,* the project's estimated solid waste generation would exceed the County's 196 tons per year threshold. In addition, the disposal of construction materials for the project would exceed the County's threshold for new construction. Mitigation Measure PS/R-1 would reduce solid waste generation during the construction phase of the project and during project operation. However, the project would still exceed the County's solid waste thresholds for construction and operation. The approved Santa Maria Integrated Waste Management Facility is planned to be operational in 2020 and would alleviate the existing need for additional solid waste disposal capacity in the region. Despite the significant and unavoidable impact, the project would not conflict with policy to ensure adequate waste services are available, and the project would be consistent with this policy.
Schools	
Policy SCH-O-1. The County shall strive to ensure that new development fully mitigates its impacts to school facilities and does not cause school overcrowding. **Action SCH-O-1.1.** The County shall require that all statutory school facilities fees established by School Districts in the Orcutt Planning Area pursuant to Govt. Code Section 65996 be paid in full prior to issuance of building permits or as agreed to by the applicant and the school district.	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation*, the proposed project would add students to the OUSD and the SMJUHSD schools. However, the collection of state-mandated fees (pursuant to Section 65995(3)(h) of the California Government Code) is considered full and complete mitigation for impacts related to public schools. The project applicant would be required by State law to pay their fair share of impact mitigation fees to avoid impact to school facilities and services.

Policy SCH-O-2. New recreational facilities should be located near or adjacent to school facilities as much as possible to allow for joint-use by schools and the community.	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation*, the proposed project would provide on-site recreational components, including approximately 96.7 acres of undisturbed open space 29.8 acres of privately managed open space that would include a trail staging area, and public recreational trail that would be located along the eastern project boundary. In addition, the applicant would be required to pay Quimby Act park fees.
Wastewater	
Policy WW-O-2. Prior to discretionary approval of a new development, the County shall make a finding that there will be adequate capacity and availability for LCSD to serve the new development.	**Consistent.** As discussed in Section 4.12, *Public Services and Recreation,* the project would not cause the LCSD plant to exceed 75 percent of its existing design capacity.
DevStd WW-O-2.1: Prior to the discretionary approval of new development, the developer shall identify all additional facilities required to adequately collect, convey, treat and dispose of the sewage effluent from the development.	**Consistent.** The project would require addition of off-site trunk and feeder lines on Key Site 22, north of the project site. In compliance with OCP EIR Mitigation Measure WW-4, the project would be required to pay trunk and feeder line fees to fund these required off-site improvements.
DevStd WW-O-2.3: A "Can and Will Serve Letter" from LCSD will be found adequate for recording of maps or issuance of land use permits (including permits for development of preexisting lots) only if the letter demonstrates: LCSD's effluent, including the effluent from the proposed project, will not exceed the discharge standards established by the Regional Water Quality Control Board; Adequate disposal capabilities exist at the plant or through agreement with the City of Santa Maria (providing that treatment and disposal by the City does not further degrade the underlying groundwater quality) to serve the project(s); and Existing or planned and funded transmission lines have available capacity to serve the project(s). **DevStd WW-O-2.4.** At the time of discretionary approval, the County shall condition the recordation of the final map or issuance of LUP's on provision of an adequate "Can and Will Serve" letter from LCSD.	**Consistent.** As described in Section 4.11, *Public Services and Recreation,* LCSD has adequate capacity within their collection system and treatment facilities to accommodate the new development. The project applicant would be required to obtain a "Can and Will Serve Letter" from the LCSD prior to map recordation.
DevStd WW-O-3.3. At the time of discretionary project approval, the County shall make a finding that the project's effluent will meet RWQCB discharge standards.	**Consistent.** As required by this development standard, the proposed project would not exceed the RWQCB discharge standards.
Transportation	
Policy CIRC-O-1. The County shall adopt and implement an Orcutt Transportation Improvement Plan (OTIP) which includes long-term improvements to roadways and alternative transportation facilities targeted to provide for acceptable levels of service on roadways and intersections	**Consistent.** The OTIP identifies long-term public improvements to roadways and alternative transportation facilities targeted to provide for acceptable levels of service on roadways and intersections within the Orcutt Planning Area. The OTIP requires fees for transportation

within the planning area. The OTIP shall be an integrated Plan for capital improvements of roads and intersections as well as alternative transportation facilities. The OTIP shall contain a list of transportation projects to be undertaken and include projected costs for each funded and unfunded improvement. The County shall also revise the Transportation Impact Fee based upon the projected cost of transportation system improvements identified in the OTIP.	impacts caused by new development in the Orcutt Planning Area. These fees may be used for roads, pedestrian facilities, transit and bicycle facilities. The project applicant would be required to contribute fair share OTIP transportation fees to offset project contributions to traffic impacts, and circulation systems maintenance, including the project's fair share of offsite improvements in an amount determined by the County Public Works Transportation Division, based on adopted fee schedules at the time of payment.
Policy CIRC-O-2. The County shall strive to provide an efficient and safe circulation system to accommodate future growth in Orcutt. The County will use its best efforts to coordinate the timing of roadway, intersection and other transportation improvements with the completion of the development projects that the improvements are intended to serve. **Policy CIRC-O-4.** A determination of project consistency with the standards and policies of the Orcutt Community Plan Circulation Section shall constitute a determination of consistency with LUDP#4 with regard to roadway and intersection capacity.	**Consistent.** As discussed in Section 4.13, *Transportation and Circulation*, the project was determined to have less than significant project-level impacts on study area intersections. However, the proposed project was found to contribute to LOS F conditions at the Foxenwood Lane/Clark Avenue intersection, resulting in a significant cumulative impact. Mitigation (if feasible) will be identified to reduce cumulative impacts to this intersection to maintain the required LOS D. Mitigation may include retaining the existing geometry of Clark Avenue, improvements to the Foxenwood Lane/Clark Avenue intersection, or other site specific improvements approved by the County Public Works Department.
Policy CIRC-O-3. The County shall maintain a minimum Level of Service (LOS) C or better on roadways and intersections within the Orcutt Planning Area, except that minimum LOS shall be "D" for the following roadway segments and intersections: Foster Road/Hwy 135, Lakeview Road/Skyway Drive, Stillwell Road/Lakeview Road, and all the Clark Avenue roadway segments and intersections between Blosser Road on the west and Foxenwood Lane on the east.	**Consistent.** As discussed in Section 4.13, *Transportation and Circulation*, the proposed project was determined to have less than significant project-level impacts on study area intersections. The 1995 OCP EIR identified significant and unavoidable (Class I) cumulative impacts to traffic resulting from full build-out (10-year) of the OCP. The County Board of Supervisors adopted a statement of overriding considerations for these Class I impacts. The OCP EIR anticipated that up to 150 residential units would be constructed on the subject lots within Key Site 21; therefore, this amount of development has been anticipated under full-build out of the OCP. The proposed project was found to contribute to LOS F conditions at the Foxenwood Lane/Clark Avenue intersection, resulting in a significant cumulative impact. Mitigation (if feasible) will be identified to reduce cumulative impacts to this intersection to maintain the required LOS D. Mitigation may include retaining the existing geometry of Clark Avenue, improvements to the Foxenwood Lane/Clark Avenue intersection, or other site specific improvements approved by the County Public Works Department.
Policy CIRC-O-6. The County shall encourage development of all feasible forms of alternative transportation in the Orcutt/Santa Maria area.	**Consistent**. Development of the proposed project would not adversely affect any off-site bike routes or park and ride facilities. The proposed project would include public multi-use trails and would connect to existing bicycling infrastructure in the Orcutt area by way of SR 1.

Policy CIRC-O-8. The County shall ensure that the circulation system maintains the quality of life within residential neighborhoods in the Orcutt Planning Area to the greatest extent feasible.	**Consistent.** The project does not include hazardous transportation design elements or features that would become a potential safety problem. In addition, the project would provide SR 1 frontage improvements that include two paved 12-foot travel lanes, deceleration/turn lanes located at the new entrances to the Willow Creek and Hidden Canyon neighborhoods, and two paved 8-foot shoulders that would also serve as Class 3 bike lanes. The project would provide internal primary and secondary access routes to/from the proposed neighborhoods.
Policy CIRC-O-9. Development shall be sited and designated to provide maximum access to non-motor vehicle forms of transportation, including well designed walkways, paths and trails between residential development and adjacent and nearby commercial uses and employment centers, where feasible.	**Consistent.** The project includes multi-use trails and sidewalks through the site. The project site is not located adjacent or near commercial uses and employment center, to which it could connect.
Policy CIRC-O-10: Developers should be encouraged to pursue innovative measures to fully mitigate transportation impacts associated with their projects.	**Consistent**. Despite the significant and unavoidable impact related to congestion at intersections under cumulative conditions, the project would be required to implement all feasible mitigation for potential traffic impacts, and the project would be consistent with this policy.
Policy CIRC-O-11: If it is determined that a project may cause significant traffic impacts which generate the need for offsite traffic improvements that are not identified in the then current OTIP, the County shall condition any approval of the project to ensure that those improvements are funded and completed before issuance of final inspection.	**Consistent.** The OTIP identifies long-term public improvements to roadways and alternative transportation facilities targeted to provide for acceptable levels of service on roadways and intersections within the Orcutt Planning Area. The OTIP requires fees for transportation impacts caused by new development in the Orcutt Planning Area. These fees may be used for roads, pedestrian facilities, transit and bicycle facilities. The project applicant would be required to contribute fair share OTIP transportation fees to offset project contributions to traffic impacts, and circulation systems maintenance, including the project's fair share of offsite improvements in an amount determined by the County Public Works Transportation Division, based on adopted fee schedules at the time of payment.
Groundwater	
Policy WAT-O-2. In order to be found consistent with Land Use Development Policy No. 4 (LUDP#4), the water demand of new discretionary development must be offset by long-term* supplemental** water supplies that do not result in further overdraft of the local groundwater basin and that are adequate to meet the project's net water demand as determined by the County considering appropriate reliability factors as determined by County Water Agency. ** "long-term" means permanent source of water for development.* *** "supplemental" water means a source of water other*	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding,* the use of groundwater to serve the development under the proposed Specific Plan would not exceed the final water rights Stipulation entered in the Santa Maria Groundwater Basin adjudication and meets the definition of "supplemental" water set forth in this policy.

than groundwater, unless: 1. the groundwater basin has been determined to be no longer in overdraft, or 2. The use of groundwater is consistent with the final water rights judgment entered in the Santa Maria Groundwater Basin adjudication (Santa Maria Valley Water Conservation District v. City of Santa Maria, et al., Santa Clara County Superior Court Case No. CV 770214). Amended by Res. 01-225, 7/10/01

DevStd WAT-O-2.1. Prior to discretionary action by any County decision-maker on new development, the applicant shall provide one of the following:

1. A "Can and Will Serve" letter from California Cities Water Company dated before July 1997;

2. An "Intent to Serve" letter from California Cities Water Company or other water purveyor(s) including draft contract(s), if any, demonstrating to the County's satisfaction that the development's net water demand will be offset by a long-term supplemental water supply and that the development will have a continuing right to obtain water equal to that of the water purveyor's other customers. Contract(s), if any, must include terms consistent with the requirements of DevStd WAT-O-2.2.

DevStd Wat-0-2.2. Prior to discretionary action on new development, the applicant must demonstrate adequacy of the water supply proposed to serve the project, unless the applicant has satisfied DevStd WAT-O-2.1 #1 above. This demonstration shall be based on the following information, which must be provided prior to application completeness:

Resources

- Provide information on project's projected gross and net demand for water. The supplemental water supply must offset the project's net water demand.
- Documentation of the reliability of the proposed water supply as projected by the Department of Water Resources (for State Water) and confirmed by the County Water Agency.
- A description of how the project will be served during drought periods. If conjunctive use of the Santa Maria Groundwater Basin is planned, demonstration that use of the basin will not contribute to long-term groundwater overdraft considering drought periods. The factual determination of overdraft contribution shall be made by the Planning & Development Department and County Water Agency.
- Provide a factual demonstration that the water purveyor has available, firm, long-term reliable water supplies which equal or exceed present demand from existing customers, projects approved for new service, and the proposed

Consistent. As discussed in Section 4.14, *Water Resources and Flooding,* water rights to the Santa Maria Basin have been adjudicated by the five-phase trial Santa Maria Valley Water Conservation District vs. City of Santa Maria, et. al (Superior Court, County of Santa Clara, Case no. 770214) in order to ensure the Basin's long-term sustainability. All overlying owners in the court-designated Santa Maria Valley Management Area that signed the Stipulation (settlement agreement) were entitled to prior and paramount overlying rights whether or not those rights have been exercised. The water rights for the proposed Specific Plan included in the project are covered by this settlement agreement. In addition, the applicant would be responsible for the installation of necessary water infrastructure to convey water to the project site.

project under County review. The demonstration should also show that the project use would not contribute to overdraft of the basin. The factual determination of no additional overdraft shall be made by Planning & Development and County Water Agency.

- Provide draft contract(s) with water purveyor(s), which demonstrate(s) to the satisfaction of the County that the development will be served by a long-term supplemental water source and will have a continuing right to obtain water equal to that of the water purveyor's other customers.
- Provide information on the water purveyor's existing and projected range of potential State Water and/or other supplemental water delivery amounts needed for full buildout under the water purveyor's management plan, status of conservation programs, drought buffers, and groundwater pumpage consistent with applicable state government code requirements on water reporting. Provide information on the most recent annual water deliveries from various sources in the purveyor's service area, as available from existing reports.

Facilities

- Documentation of the facilities necessary to deliver water and demonstration of permanent access to the facilities such that uninterrupted service would be provided. The documentation must include a list and description of facilities, site plans, capacity and capital costs necessary to distribute water to the project.
- Demonstration that capital costs associated with providing service to the new development will not impact existing Orcutt development.
- Demonstration that the water supply project is designed, approved, funded and scheduled for implementation prior to tract map recordation or land use clearance.
- Describe approvals and entitlements necessary for the proposed water supply and delivery system.

DevStd Wat-0-2.3. Prior to map recordation or land use clearance, the developer must provide a Can and Will Serve letter and necessary final contract(s) consistent with the conditions of the discretionary permits and terms of the draft contract(s).

Policy WAT-O-3. Development in Orcutt shall incorporate water efficient design and technology.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding,* the project would be required to comply with standard OCP Policy design guidelines, which include a modified list of the landscape design recommendations identified in the OCP EIR (Section 5.6-13) and additional indoor design measures for water efficiency.
Policy WAT-O-5. To reduce overall TDS levels in the wastewater in Orcutt, and thereby reduce the level of potential groundwater contamination from disposal of this wastewater, water used to serve new development in Orcutt must have a TDS level of no greater than 425 mg/L. This may either be provided through direct deliveries of 425 mg/L or less waster to new development through the delivery of offsetting 425 mg/L or less water to the water system serving Orcutt. An exception to this standard is allowed only when the TDS level of State Water delivered to Santa Maria exceeds 425 mg/L; in that case, the TDS level of water serving Orcutt may not exceed the TDS level of State Water. However, in "drought years" (as determined by the County Water Agency) water demand may be satisfied by groundwater pumpage in compliance with the adopted groundwater management agreement between the City of Santa Maria and the SMV Water Conservation District.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, water quality data from 2008 to 2012 for the nearby existing RMGC golf course well indicate a calcium-sulfate groundwater character with a total dissolved solids (TDS) concentration of 615 mg/L and a pH of 7.3 to 7.4. Nitrate (a problem elsewhere in the Santa Maria Basin, especially in shallower aquifer zones) was detected at 1.57 mg/L as N (with a maximum contaminant level of 10 mg/L). These characteristics are reasonably expected to reflect water quality at the recommended well locations (Appendix L), resulting in a potentially significant impact. Implementation of Mitigation Measure WR-3, requiring modern drilling, analysis, and well construction techniques for the project, would ensure new wells would meet the County's standard for TDS concentrations of 425 mg/L (Appendix L). Therefore, Mitigation Measure WR-3 would reduce impacts related to groundwater quality to a less than significant level.
Air Quality	
Policy AQ-O-1. The County shall encourage land use planning and development design which reduces air pollution through development of transportation infrastructure supportive of alternative modes of transportation and pedestrian oriented developments.	**Consistent**. Development of the proposed project would not adversely affect any offsite bike routes or park and ride facilities. The proposed project would include a public hiking trail and would connect to existing and future bicycling infrastructure in the Orcutt area by way of SR 1.
Policy AQ-O-2. Significant fugitive dust and PM_{10} emissions shall be reduced through implementation of appropriate construction restrictions and control measures, consistent with standards adopted by the Board.	**Consistent.** As discussed in Section 4.3, *Air Quality*, the proposed project would implement standard dust and emissions control measures required by the SBCAPCD, which would ensure that construction-related air quality impacts are less than significant.
Policy AQ-O-3. The County should promote the use of alternative fuels, solar energy systems, and the use of construction techniques which are designed to conserve energy and minimize pollution in Orcutt, consistent with, but not limited to the provisions of the CA Building Code.	**Consistent.** Table 4.9-6 in Section 4.9, *Greenhouse Gas Emissions*, describes the project's consistency with the applicable required measures and actions from the County's ECAP, including measures to conserve energy and minimize pollution in Orcutt. Additionally, as discussed in Section 4.6, *Energy*, CalGreen includes specific requirements related to recycling, construction materials, and energy efficiency standards that would apply to project construction and would minimize wasteful, inefficient, and unnecessary energy consumption and minimize pollution. Construction of the proposed residences would comply with the California Energy Efficiency Standards for Residential and Non-residential Buildings and CalGreen (California Code of Regulations Title 24, Parts 6 and 11). This code requires

	the provision of electric vehicle charging stations, water-efficient plumbing fixtures and fittings, recycling services, and other energy-efficient measures.
Biological Resources	
Policy BIO-O-1. Important natural resources in Orcutt, including sandhill chaparral, central dune scrub, wetlands, oak trees and woodland, Bishop pine forest, specimen trees, and central sage scrub shall be protected, consistent with the Open Space Plan and the standards below, unless this would prevent reasonable development of a property. **DevStd BIO-O-1.1.** Development shall be sited and designed to avoid disruption and fragmentation of significant natural resources within and adjacent to designated undeveloped natural open space areas, minimize removal of significant native vegetation and trees, preserve wildlife corridors and provide reasonable levels of habitat restoration. Where possible, significant natural resources, such as specimen trees, adjacent to designated, natural undeveloped open space corridors should be preserved. **DevStd BIO-O-1.2.** Development within or adjacent to designated natural open space areas shall be reviewed for, and required to implement, habitat restoration where site- specific impacts require restoration. If restoration on or near the site is not feasible, acquisition and preservation of additional habitat acreage should be considered, as a last resort if no other like-kind habitat mitigation options are available, payment into a mitigation bank program within the OPA that is acceptable to the County as provided for by new DevStd BIO-O-1.8. Mitigation and restoration plans should identify acreage impacted, replacement ratios, success criteria, remedial measures, and funding and responsibility for long-term maintenance and monitoring. All such restoration projects shall utilize native plants derived from local (Orcutt) seed and cutting stock, or as deemed biologically acceptable by a County qualified biologist. Wildlife relocation should be avoided. However, any wildlife relocation should be coordinated with Fish and Game and be consistent with applicable State standards.	**Consistent.** The project would retain approximately 96.7 acres of the project site in undisturbed open space and 29.8 acres of the site in privately managed open space that includes landscape, trailhead, trails, and fuel modification areas. The project includes an Open Space Management Plan that describes requirements for future management of on-site open space areas. As discussed in Section 4.4, *Biological Resources,* the project would be subject to mitigation requirements to minimize impacts to sensitive biological resources. Mitigation Measures BIO-1(a) and BIO-1(b) would reduce impacts to special status plant species that may be adversely affected by the project to a less than significant level through pre-construction surveys and avoidance, minimization, and mitigation, including habitat restoration. Mitigation Measures BIO-3(a) through BIO-3(c) would reduce impacts to sensitive communities to a less than significant level through compensation for sensitive natural communities and riparian habitat and habitat restoration. Mitigation Measures BIO-4(a) through BIO-4(c) would reduce potential impacts to jurisdictional areas including wetlands to less than significant levels through avoidance and habitat restoration. Mitigation Measure BIO-6 would reduce impacts to protected trees to a less than significant level through tree protection and replacement. Implementation of these required measures would minimize impacts to important natural resources without preventing reasonable development of the Key Site 21 property. Additionally, the project would result in indirect impacts to wildlife movement. Mitigation Measures BIO-5(a) through BIO-5(c) would reduce indirect impacts to wildlife movement to a less than significant level.
DevStd BIO-O-1.3. Landscaping for development on the edge of designated natural undeveloped open space areas shall include native trees and shrubs, with habitat restoration efforts focused on buffers. Planting of highly invasive weedy plants (e.g., iceplant. pampas grass, veldt grass, monterey pine, eucalyptus, spiny clotbur, and Australian fireweed) shall be prohibited within 500 feet of natural undeveloped open space areas as designated on the Open Space map (Figure 20).	**Consistent.** Mitigation Measure BIO-3(c) in Section 4.4, *Biological Resources,* requires the landscape plans for future development to be reviewed and approved by the Planning and Development in coordination with a County-approved biologist. This measure requires the applicant to use primarily native, locally collected plant species for landscaping purposes, and that the use of non-native invasive species is prohibited.

DevStd BIO-O-1.5. The edges of designated undeveloped natural open space areas shall be clearly delineated and fenced where necessary to protect resources both during construction and, when appropriate, over the life of the project. Long term fencing shall be designed to accommodate wildlife passage where appropriate.	**Consistent.** Mitigation Measure BIO-5(b) requires project fencing for accessory components (i.e., roads, trail, etc.) to be designed to minimize impacts to wildlife. Fencing shall not block wildlife movement. Where fencing is required for public safety concerns, the fence shall be designed to permit wildlife movement by incorporating design features.
DevStd BIO-O-1.8. Where new development eliminates important onsite habitat (e.g. coastal sage scrub, grasslands, riparian habitat and wetlands), County shall require development to restore or enhance like-kind habitat either onsite or offsite. If restoration sites are limited or unavailable, County shall require payment of adequate fees into a mitigation bank program acceptable to County to permanently protect a comparable or greater amount of created or restored habitat elsewhere within the OPA.	**Consistent.** As discussed in Section 4.4, *Biological Resources,* Mitigation Measures BIO-3(a) through BIO-3(c) would reduce impacts to sensitive communities to a less than significant level through compensation for sensitive natural communities and riparian habitat. Mitigation Measures BIO-4(a) through BIO-4(c) would reduce potential impacts to jurisdictional areas to less than significant levels.
Policy BIO-O-2. Consistent with necessary flood control practices, natural stream channels and riparian vegetation in Orcutt shall be maintained in an undisturbed state in order to protect banks from erosion, enhance wildlife passageways, and provide natural greenbelts, unless this would prevent reasonable development of a property.	**Consistent.** Project development would require preparation of a SWPPP that would include the implementation of sediment basins and other sediment control methods in the initial stage of construction in order to control sediment runoff. In addition, the project would include on-site bio-retention facilities and LID features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. In addition, implementation of mitigation measures BIO-3(a) through BIO-3(c) would avoid or mitigate impacts to sensitive communities and riparian habitat on the project site.
Policy BIO-O-3. Established native trees in designated open space areas shall be protected. Established native trees in developable areas shall be incorporated into the site landscaping plan to the greatest degree feasible except where it would interfere with reasonable development of a property. Native trees shall be considered established if they are six feet in height.	**Consistent.** The project would include 96.7 acres of undisturbed open space 29.8 acres of privately managed open space in the two proposed neighborhoods. This area and the resources within it would be left undisturbed. Mitigation Measure BIO-6 requires applicant submittal of a Tree Protection Plan (TPP) prepared by a County-approved biologist and/or arborist designed to avoid impacts to protected trees that are not planned for removal. For the trees proposed for removal, the tree replacement plan shall be designed to replace native trees removed by the proposed project at a ratio of 10:1 (trees planted: trees impacted) for oak trees, 3:1 (trees planted: trees impacted) for arroyo willow, and 1:1 (native trees planted: non-native trees impacted) for non-native trees.
DevStd BIO-O-3.1. To the maximum extent feasible, development shall be designed to avoid damage to native trees (e.g., oaks) by incorporating setbacks, clustering, or other appropriate methods. Areas protected from grading, paving, and other disturbances shall include the area 6 feet outside of established native tree driplines, unless this distance would interfere with reasonable development of a property. Where native trees are	**Consistent.** The Tree Protection Plan required for the project under Mitigation Measure BIO-6(a) includes the following requirements: Prior to the onset of any construction activities, high visibility orange construction fencing shall be installed around existing stands and individuals that are to be retained at a buffer/extent radius of six feet beyond the canopy dripline, wherever the topography allows for such fencing or otherwise

removed, they shall be replaced in a manner consistent with County standards.	marked in the field to protect them from harm during grading and construction; No construction equipment shall be parked, stored, or operated within 25 feet of any protected tree dripline; No fill soil, rocks, or construction materials shall be stored or placed within 25 feet of the dripline of a protected tree; No artificial surface, pervious or impervious, shall be placed within 25 feet of the dripline of any protected tree, except for County-approved project access roads; Any roots encountered that are one inch in diameter or greater shall be cleanly cut. This shall be done under the direction of a County-approved arborist/biologist; Any construction activity required within three feet of a protected tree's dripline shall be done with hand tools; No permanent irrigation shall occur within the dripline of any existing protected tree. With implementation of these requirements the project would be consistent with this development standard.
Policy BIO-O-4. Non-native trees (e.g., eucalyptus groves and windrows) that provide known raptor nesting or key roosting sites shall be protected; non-native specimen trees shall be protected to the greatest degree feasible except where it would interfere with reasonable development of a property. Non-native trees of less than 25 inches in diameter at breast height do not qualify as specimens for this Policy. **DevStd BIO-O-4.1.** Where non-native specimen trees are removed for development the County should consider replacement with native trees.	**Consistent**. For protected trees that require removal, Mitigation Measure BIO-6 requires that a Tree Replacement Plan be prepared and/or incorporated into the Final OSMP. The tree replacement plan shall be designed to replace native trees removed by the proposed project at a ratio of 10:1 (trees planted: trees impacted) for oak trees, 3:1 (trees planted: trees impacted) for arroyo willow, and 1:1 (native trees planted: non-native trees impacted) for non-native trees.
Policy BIO-O-5. New facilities in Orcutt, including roads, bikepaths/trails, sewer lines and retention basins, shall to the maximum extent feasible be sited and designed to avoid disruption of significant natural resources within designated natural undeveloped open space areas, minimize removal of significant native vegetation and trees and provide for reasonable levels of habitat restoration for significant habitats disrupted by construction.	**Consistent**. The project includes approximately 96.7 acres of undisturbed open space 29.8 acres of privately managed open space. Also refer to discussions of project consistency with Policy BIO-O-1 and DevStd BIO-O-1.1. As discussed in Section 4.12, *Public Services and Recreation*, the proposed Comprehensive Plan Amendment would include relocation of a trail staging area from SR 1 to the proposed Hidden Canyon neighborhood development area. The project would also include a public recreational trail that would located along the eastern project boundary. The terminus of the trail would be at the access road for the Hidden Canyon Neighborhood subterranean water tank, approximately 750 feet north of the project's southern boundary. The Hidden Canyon tentative tract map includes an easement to the remaining 750 feet of trail corridor extending to the southeast corner of the project boundary. The Santa Barbara County Community Services Department, Park Division would be responsible for installing the balance of the trail at a future date as part of an overall project to extend the trail on the adjacent parcel to the south (Garciacelay 2018). The proposed staging area and trail would implement the OCP-designated trail RM-1 within the project site (identified in the OCP Area Parks, Recreation, and Trails Maps) and would be consistent with the OCP Key Site 21 DevStd KS21-5. These trails would be

	constructed by the applicant and dedicated to the public.
DevStd BIO-O-5.1. Road construction shall minimize filling within creeks, stream corridors and wetlands and avoid or minimize removal of riparian vegetation. To the maximum extent feasible, bridges (rather than culverts) shall be required over all major creeks and wildlife corridors. Such bridges shall be designed to facilitate wildlife passage by providing at least 6 feet of vertical clearance and locate support structures outside of creekbanks, if feasible. Crossings of tributaries and drainages should use bridges if a bridge would avoid or substantially reduce impacts to sensitive habitat and sediment buildup. Road projects should also preserve the hydrologic connectivity between wetlands, and between wetlands and upland areas.	**Consistent.** Project development, including installation of the proposed access roads, and culvert, would require preparation of a Storm Water Pollution Prevention Plan (SWPPP) that would include the implementation of sediment basins and other sediment control methods in the initial stage of construction in order to control sediment runoff. In addition, implementation of mitigation measures BIO-3(a) through BIO-3(c) would avoid or mitigate impacts to sensitive communities and riparian habitat on the project site. The proposed culvert would not be located over a major creek or wildlife corridor area, and the installation of a bridge instead of a culvert would not substantially reduce impacts to sensitive habitat and buildup in this area of the project site.
DevStd BIO-O-5.2. In designated open space areas, roadway segments (e.g., Union Valley Parkway and E Street) shall be designed in consultation with P&D, the Park Department, and appropriate federal and state agencies to allow wildlife passage through provision of appropriately placed bridges and/or culverts, and shall prohibit all night lighting in designated open space corridors except as necessary for public safety (e.g., intersections, trailheads or crossings). Light "spill over" should be minimized by directing lighting away from the open space area, the use of hoods, and landscape screening (with native species) along the road.	**Consistent.** Mitigation Measures BIO-5(a) through BIO-5(c) require implementation of avoidance measures, fence design, and development of a lighting plan to avoid impacts to wildlife and wildlife movement through the project area. With implementation of these measures, impacts would be reduced to less than significant levels. In addition, implementation of mitigation measures BIO-3(a) through BIO-3(c) would avoid or mitigate impacts to sensitive communities and riparian habitat on the project site. Union Valley Parkway and E Street would not be constructed or extended as part of the project. However, access to the proposed Hidden Canyon neighborhood would be coordinated with a future extension of Union Valley Parkway across Key Site 22, in consultation with with County Planning and Development, the Community Services Department, Parks Division, and appropriate federal and state agencies to avoid impacts to resources in the area.
DevStd BIO-O-5.3. Multi-use trail construction should avoid removal of riparian vegetation to the maximum extent feasible. The Orcutt Creek multi-use trail shall be set back a minimum of 50 feet from the outside edge of riparian vegetation or the top-of-bank (whichever is further), unless this would make the multi-use trail link infeasible. Trail construction shall include riparian restoration between the edge of existing native vegetation and the bicycle path. Trail lighting should be directed away from the creek.	**Consistent.** Mitigation Measures BIO-3(a) through BIO-3(c) would reduce impacts to sensitive communities to a less than significant level through compensation for sensitive natural communities and riparian habitat. Mitigation Measures BIO-4(a) through BIO-4(c) would reduce potential impacts to jurisdictional areas to less than significant levels. Mitigation Measures BIO-5(a) through BIO-5(c) require implementation of avoidance measures, fence design, and development of a lighting plan to avoid impacts to wildlife and wildlife movement through the project area.
DevStd BIO-O-5.4. Trails should follow existing dirt road and trail alignments and utilize existing bridges where feasible. Where this is not possible, prior to final trail alignment proposed trail routes should be surveyed and rerouted where necessary to avoid sensitive species, subject to final approval by P&D) and the Park Department. All trails shall be sited and designed to avoid or minimize impacts to sensitive resources, areas of steep	**Consistent**. There are no existing formal trails on the project site, but proposed trails would be designed to minimize impacts. As discussed in Section 4.4, *Biological Resources,* Mitigation Measures BIO-3(a) through BIO-3(c) would reduce impacts to sensitive communities to a less than significant level through compensation for sensitive natural communities and riparian habitat. . Project development would also require preparation of a SWPPP

slopes and/or highly erosive/sandy soils, where feasible. Developers shall fund sign installation along certain trails (as identified in the Multi Use Trail Guidelines) providing educational and interpretive information and advising dog owners to keep their dogs out of sensitive habitats.	that would include the implementation of sediment basins and other sediment control methods in the initial stage of construction in order to control sediment runoff. With implementation of required mitigation measures and runoff requirements, the proposed project would be consistent with this development standard.
DevStd BIO-O-5.6. Excavated fill for retention basin construction shall not be placed within important natural resource areas. Areas adjacent to or within habitats which are disturbed during construction shall be revegetated with appropriate native species. All sensitive habitat areas adjacent to proposed detention basins shall be fenced before grading begins to prevent disturbance and stockpiling in these areas.	**Consistent.** As discussed in Section 2, Project Description, grading for the proposed project was designed to result in a balance of cut and fill between the two neighborhoods. No fill material would be imported to or exported from Key Site 21, and no fill material would be placed in the undeveloped natural open space areas. Project development would also require preparation of a SWPPP that would include the implementation of sediment basins and other sediment control methods in the initial stage of construction in order to control sediment runoff. In addition, implementation of Mitigation Measures BIO-3(a) through BIO-3(c) would avoid or mitigate impacts to sensitive communities and riparian habitat on the project site.
Flooding and Drainage	
Policy FLD-O-1. Flood risks in the Orcutt planning area shall be minimized through appropriate design and land use controls.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, according to FEMA Flood Insurance Maps (FIRMs), the entire project area is outside the 100-year and 500-year floodplain of Orcutt Creek. In addition, the project would be required to comply with OCP EIR Mitigation Measures FLD 3.1 through FLD 3.5, requiring fair share contribution to installation and maintenance for a regional retention basin and other design and maintenance requirements for regional retention basins, and the SBCFCD stipulation that post-development peak stormwater flows not exceed pre-development flows for 2-, 5-, 10-, 25-, 50-, and 100-year storm events. In accordance with these requirements, the project would include on-site bio-retention facilities and LID features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Compliance with existing design guidelines, applicable SBCFCD requirements for post-development peak stormwater flows and BMPs and maintenance requirements described in the Neighborhood Stormwater Control Plans would ensure that potential flooding impacts and impacts to on-site and off-site drainage would be less than significant.
DevStd FLD-O-1.2. No structures or other development (except for bridges, culverts and flood control requirements) shall be allowed within creek channels.	**Consistent**. The proposed project does not include development within creek channels.

DevStd FLD-O-1.3. No development shall be permitted within the floodplain of Orcutt, Pine Canyon or Graciosa Creeks unless such development would either be necessary to: 1. Permit reasonable development of the site and would not lead to disturbance or removal of significant riparian/wetland vegetation; or 2. Accomplish a major public policy goal of the Orcutt Community Plan.	**Consistent.** As discussed in Section 4.14, *Water Resources and Flooding*, the project does not include development within the Orcutt Creek floodplain.
Policy FLD-O-2. Off-site runoff associated with development should be minimized.	**Consistent**. The project would include on-site bio-retention facilities and LID features designed to comply with SBCFCD requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Compliance with existing design guidelines, applicable SBCFCD requirements for post-development peak stormwater flows and BMPs and maintenance requirements described in the Neighborhood Stormwater Control Plans would ensure that potential flooding impacts and impacts to on-site and off-site drainage would be less than significant.
DevStd FLD-O-2.1. Pervious construction materials, such as turf block, non-grouted brick, and gravel, shall be used where feasible.	**Consistent**. Upon review of the proposed project, the County Flood Control District would determine whether materials such as turf block, non-grouted brick and gravel are appropriate for use. The use of these materials would be approved through County Planning and Development. In addition, the project would be required to comply with OCP EIR Mitigation Measures FLD 3.1 through FLD 3.5, requiring fair share contribution to installation and maintenance for a regional retention basin and other design and maintenance requirements for regional retention basins, and the SBCFCD stipulation that post-development peak stormwater flows not exceed pre-development flows for 2-, 5-, 10-, 25-, 50-, and 100-year storm events. In accordance with these requirements, the project would include on-site bio-retention facilities and LID features designed to comply with these requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Compliance with existing design guidelines, applicable SBCFCD requirements for post-development peak stormwater flows and BMPs and maintenance requirements described in the Neighborhood Stormwater Control Plans would ensure that potential flooding impacts and impacts to on-site and off-site drainage would be less than significant.
Policy FLD-O-3: Short-term and long-term erosion associated with development shall be minimized. **DevStd FLD-O-3.1.** Development projects shall incorporate sedimentation traps to minimize the erosion	**Consistent**. Storm water monitoring, Best Management Practices (BMPs), implementation of erosion control measures, and implementation of spill prevention and containment measures would be required for the life of the project in compliance with National Pollutant

of soils into natural and manmade flood control drainages, where feasible. All development adjacent to stream channels shall be required to install check dams as deemed appropriate by Flood Control and Planning & Development to minimize channel down-cutting and erosion. To the maximum extent feasible, all such structures shall be designed to avoid impacts to creek vegetation. **DevStd FLD-O-3.2.** Silt fencing, straw bales, sand bags, and sediment basins shall be used in conjunction with other methods to prevent erosion on slopes and siltation of the stream channel.	Discharge Elimination System (NPDES) permit requirements. Project construction activities would also be subject to the County's grading ordinance and applicable OCP development standards to minimize erosion and associated impacts to water quality. The project would also conform to OCP Dev Std FLD-O-3.1 and FLD-O-3.2, which require the installation of sedimentation traps and other BMPs to prevent erosion and siltation of waterways. In addition, implementation of Mitigation Measures BIO-3(a) through BIO-3(c) would avoid or mitigate impacts to sensitive communities and riparian habitat on the project site.
Geology, Topography, and Soils	
Policy GEO-O-1. Development shall be sited to avoid geologically hazardous areas.	**Consistent.** As discussed in Section 4.8, *Geological Resources*, the site is subject to seismic groundshaking and soil stability hazards. The project would be required to comply with all applicable provisions of the California Building Code to ensure that impacts from groundshaking would be less than significant. In addition, Mitigation Measure GEO-3 is also required to ensure all recommendations contained in the Soils Engineering Report and Engineering Geology Investigation (are fully implemented. of the project would locate residential lots and roadway segments on slopes exceeding slopes exceeding 20 and 30 percent gradients. As a result, Mitigation Measure GEO-1 would be required to reduce potential impacts resulting from cut slopes exceeding 15 feet in height.
DevStd GEO-O-1.1. New construction shall be set back a minimum of 50 feet from all known active or potentially active faults which have been mapped.	**Consistent.** As discussed in Section 4.8, *Geologic Processes*, no active faults are located on the project site or in the vicinity of the project site. The closest known active faults to the project site are the Los Alamos (13 miles to the southeast), Hosgri (31 miles to the northwest), and San Andreas (44 miles to the east) faults. The closest known potentially active faults are the Orcutt/Casmalia fault line, approximately one mile south of Key Site 21, and the Lions Head fault line located approximately 4 miles southwest of the project site.
Policy GEO-O-2. In areas of high erosion potential, development shall be sited and designed to minimize increased erosion.	**Consistent.** The location and fill requirements of the project could result in long-term erosive runoff and sedimentation in nearby waterways. Compliance with existing County BMPs, as well as OCP policies and development standards, would reduce erosion potential. Implementation of Mitigation Measures GEO-1 and GEO-2 and implementation of applicable Santa Barbara County erosion control BMPs, as well as OCP policies and development standards, would reduce impacts associated with the potential for soil erosion and sedimentation into drainages resulting from buildout of the project to as less than significant level. With implementation of these mitigation measures, the project would be consistent with this policy.

DevStd GEO-O-2.1. Consistent with Hillside and Watershed Policy #1, excessive grading for creation or enhancement of views shall not be permitted. Where new roads and driveways would require substantial grading, development shall be sited close to existing access roads. **DevStd GEO-O-2.2.** Development shall be prohibited on slopes greater than 30% unless this would prevent reasonable development of a property. In areas of unstable soils, highly erosive soils or on slopes between 20% and 30% development shall not be allowed, unless an evaluation by a qualified professional (e.g., soils engineer, geologist, etc.) establishes that the proposed project will not result in unstable slopes or severe erosion or this would prevent reasonable development of a property.	**Consistent.** The proposed project would not grade to enhance or create views. However, the project would require grading to construct new roadways and residences throughout the project site. As discussed in Section 4.8, *Geologic Processes*, the project would require grading on slopes exceeding 20 percent for approximately 32 residential lots and approximately 11 road segments and would require grading on slopes exceeding 30 percent for 13 residential lots and six road segments. In addition, engineering designs for the project do not limit cut slope heights to 15 feet or lower. Slopes in excess of 15 feet in height as measured from the lowest finished grade would increase the potential for unstable hillsides, creating a potential for landslides and other soil stability hazards. Mitigation Measure GEO-1 would be required to reduce impacts resulting from locating development on unstable soils to a less than significant level.
DevStd GEO-O-2.3. To aid in erosion control, existing hillside topography, large stands of trees, and natural flood channels shall be preserved, unless this would prevent reasonable development of a property.	**Consistent.** 18 protected trees would be removed within the proposed Willow Creek neighborhood, five protected trees would be removed within the proposed Hidden Canyon neighborhood and approximately 64 protected trees would be removed along the proposed sewer line easement with implementation of the project. The project would not remove large stands of trees. Mitigation Measures BIO-3(a) through BIO-3(c) would provide for compensation for sensitive natural communities and riparian habitat. Mitigation Measures BIO-4(a) through BIO-4(c) would reduce potential impacts to jurisdictional areas to less than significant levels. Mitigation Measure BIO-6 would require tree protection and replacement. The tree replacement plan shall be designed to replace native trees removed by the proposed project at a ratio of 10:1 (trees planted: trees impacted) for oak trees, 3:1 (trees planted: trees impacted) for arroyo willow, and 1:1 (native trees planted: non-native trees impacted) for non-native trees. These measures to mitigate potential impacts to biological resources on the project site and would also aid in erosion control. In addition, adherence to a Storm Water Pollution Prevention Plan (SWPPP) would minimize exposed soils; avoid construction during the rainy season; stabilize slopes; and control erosion.
DevStd GEO-O-2.4. All surface water runoff shall be culverted and diverted to avoid erosion of exposed slopes and shall be directed to the nearest natural drainage channel. Where such measures are feasible and would not substantially increase erosion, vegetated earthen channels should be substituted for culverts. Cribwalls or other methods should only be used where necessary to retain slopes.	**Consistent**. The project would include on-site bio-retention facilities and LID features designed to comply with SBCFCD requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Storm water monitoring, Best BMP, implementation of erosion control measures, and implementation of spill prevention and containment measures would be also required for the life of the project in compliance with NPDES permit requirements. Project construction activities would also be subject to the County's grading ordinance and applicable OCP development standards to minimize erosion and

	associated impacts to water quality. The project would also conform to OCP Dev Std FLD-O-3.1 and FLD-O-3.2, which require the installation of sedimentation traps and other BMPs to prevent erosion and siltation of waterways.
DevStd GEO-O-2.6. All landscape plans shall be reviewed by P&D to ensure revegetation of graded areas in areas of sandy soils. Landscape securities shall be required unless expressly waived by P&D.	**Consistent.** The project would include preparation of a landscaping plan for review and approval by the County Board of Architectural Review, consistent with the requirements of this policy. The project landscape plan will include all landscape specifications required by Mitigation Measures AES-1 through AES-4 and BIO-6 and must be reviewed and approved by the Planning and Development Department in coordination with a County-approved biologist, pursuant to Mitigation Measure BIO-3(c).
DevStd GEO-2.7. The County shall consider allowing lots to be drained to the rear only where it can be demonstrated that such rear-draining will reduce overall grading associated with a project and will provide an equal level of flood control protection as standard front-draining design.	**Consistent**. The project would include on-site bio-retention facilities and LID features designed to comply with SBCFCD requirements. The proposed retention facilities would reduce peak flows, with overflow captured in desilting/retention basins. The proposed LID features would divert drainage to landscaped areas to promote infiltration. Storm water monitoring, Best BMP, implementation of erosion control measures, and implementation of spill prevention and containment measures would be also required for the life of the project in compliance with NPDES permit requirements.
Policy GEO-O-3. No grading in excess of 50 cubic yards (combined cut and fill) shall be permitted within areas designated open space in the Orcutt Community Plan without an approved Grading Permit. This requirement applies to all grading activity (including activities otherwise exempted under County Grading Ordinance 3937, Sections 14 6 and 14 8). This requirement shall not apply to the emergency activities of a public agency, including but not limited to wildfire and/or flood control.	**Consistent.** Project construction activities would be subject to the County's grading ordinance, which requires a grading permit and an Erosion and Sediment Control Plan for all new grading, excavations, fills, cuts, borrow pits, stockpiling, compaction of fill, and land reclamation projects on privately owned land where the transported amount of materials exceeds 50 cubic yards or the cut or fill exceeds three feet in vertical distance to the natural contour of the land.
History and Archaeology	
Policy HA-O-1. Archaeological and historic resources in the Orcutt Planning Area shall be protected and preserved to the maximum extent possible.	**Consistent.** No structures or formal landscape features identified as historic resources currently exist on the project site, and there are no known archaeological or other cultural resources on the project site. Mitigation Measures CUL-1(a) and CUL-1(b) would reduce impacts associated with the potential to unearth previously undiscovered cultural resources during grading and construction to a less than significant level, and Mitigation Measure CUL-2 would ensure that previously unidentified tribal cultural resources would not be impacted during project construction.
DevStd HA-O-1.1. Development on Key Sites that has not been surveyed by a County-qualified archaeologist should be surveyed and mitigated in accordance with State and County archaeological and historic guidelines.	**Consistent.** As discussed in Section 4.5 *Cultural and Tribal Cultural Resources*, four prior archaeological investigations have been conducted in the immediate project site vicinity. All four investigations were conducted by County-

	qualified archaeologists and meet current standards and methods and are consistent with the County's Cultural Resource Guidelines.
Noise	
Policy NSE-O-1. Development of new noise sensitive uses (as defined in the Noise Element) in Orcutt should provide attenuation of ambient noise levels for indoor living areas and, where practical, for outdoor living areas. **DevStd NSE-O-1.1.** Noise sensitive land uses should be located outside of the 65 dB(A) CNEL contours, unless this would prevent reasonable development of a property. **DevStd NSE-O-1.2.** Noise sensitive uses proposed in areas exceeding 65 dB(A) CNEL shall be designed so that exterior living spaces do not exceed 65 dB(A) CNEL and interior noise levels attributable to exterior sources do not exceed 45 dB(A) CNEL when doors and windows are closed. Noise insulation construction techniques may include installation of air conditioning for all units and double-paned windows and wall insulation for all window and wall locations with lines of sight to the noise source. Building design and construction specifications shall meet the interior noise standard set forth in California Administrative Code, Title 25, as demonstrated through an acoustical analysis prior to project approval. **DevStd NSE-O-1.3.** Project design shall use a combination of vegetated berms, unit orientation or other methods to reduce noise affecting interior and exterior living spaces. The developer should retain a County-approved noise consultant to conduct a study determining the design and effectiveness of proposed noise reduction measures. Soundwalls shall only be used if alternative noise reduction measures are ineffective. If found necessary soundwalls shall be decorative masonry or wood walls planted with fast-growing vines and shrubs.	**Consistent.** As described in Section 4.11, *Noise*, the proposed residences would not be exposed to exterior noise levels in excess of the County's exterior noise standard 65 dBA CNEL, or interior noise levels that would exceed the County's interior noise standard of 45 dBA CNEL. The project would not result in a potential impact requiring mitigation or other operational noise reduction measures. Implementation of Mitigation Measures N-1(a) and N-1(b) would ensure that construction activities only occur during normal daytime hours and on weekdays, when people are less likely to be disturbed by noise and would reduce sound levels from the loudest individual pieces of construction equipment. These measures would reduce overall construction noise and prevent nighttime construction noise, which would ensure that average daily construction noise levels would not exceed the County of Santa Barbara's maximum acceptable level of 65 dBA CNEL.
DevStd NSE-O-1.5. All residential development proposed for the area within the 60dB or greater CNEL airport noise contour shall provide a Truth-in-Sales notice for future units indicating that the site is affected by low aircraft overflights and nuisance noise impacts. These sites include 5-9, 12, 18-23, 25-30, 32, 34, N, E, F and G (*per Airport Land Use Commission*).	**Consistent**. As discussed in Section 4.11, *Noise*, and shown in the 1993 ALUP and draft compatibility plans for the Santa Maria Public Airport, the project site is in the helicopter approach and departure corridor for the airport and is subject to occasional aircraft overflights. However, the site is outside the 60 dBA CNEL noise contour for the airport (SBCAG 1993). As a result, aircraft noise does not currently exceed County standards on the project site and Truth-in-Sales notices are not required. .
Policy NSE-O-2. Construction noise in Orcutt shall be minimized during non-standard work hours. **DevStd NSE-O-2.1.** Standard construction working hours (i.e., 7 a.m. to 4 p.m., Monday-Friday) shall be required for development activities. Flexibility to allow extended hours on weekdays and/or occasional working hours on Saturdays should be determined on a case-by-case basis.	**Consistent.** Implementation of Mitigation Measure N-1(a), which limits construction operations to normal work hours (8:00 a.m. to 5:00 p.m.), would ensure general consistency with this policy.

DevStd NSE-O-2.2. Noise attenuation barriers, muffling of grading equipment and additional mitigation where deemed appropriate should be required for development where construction equipment generates noise levels in excess of 95 dB(A).	**Consistent.** Project construction activities would not result in noise levels in excess of 95 dBA. Additionally, implementation of Mitigation Measure N-1(b) would reduce sound levels from the loudest individual pieces of construction equipment.
Risk of Upset/Hazardous Materials	
Policy RISK-O-2. The County shall minimize the risk to public safety associated with airport operations.	**Consistent.** The project site is not located within an airport planning area or Airport Area of Influence. Therefore, there would be no impact associated with aviation-related hazards.
Policy RISK-O-3. The County shall minimize the risk to public safety associated with hazardous materials.	**Consistent.** As discussed in Section 4.15, *Effects Found Not to be Significant,* no sites that store hazardous materials were identified within a one-mile radius of the site. Small quantities of hazardous materials may be used in conjunction with the proposed residential uses on site, such as typical solvents, paints, chemicals used for cleaning, and landscaping supplies. However, these materials would be limited in type and quantity such that they would not create a hazard to the public or environment. Therefore, impacts related to the use, storage, and handling of hazardous materials would be less than significant.
Visual	
Policy VIS-O-1. Significant scenic and visual natural resources in Orcutt shall be protected in order to preserve the semi-rural character of the OPA.	**Consistent**. As discussed in Section 4.1, *Aesthetics/Visual Resources*, the project would alter views of the Casmalia Hills and the surrounding scenic vistas from SR 1 by developing residential units in existing viewsheds that are currently dominated by open space. However, the proposed residential structures would be limited to a maximum building height of 35 feet, with a single-story restriction on lots immediately adjacent to the RMGC public golf course fairway and would generally not obstruct the horizon line of the Casmalia Hills from RMGC or SR 1. Proposed landscaping would also provide screening for views of the proposed residential structures from the public golf course. The alteration in views would not constitute a substantial obstruction or damage to scenic resources.
DevStd VIS-O-1.1. All development including buildings, understories, fences, water tanks and retaining walls adjacent to designated natural open space areas shall be sited and designed to protect the visual character of these areas and blend in with natural landforms through the use of such methods as setbacks, building orientation, materials and colors (earth tones and non-reflective paints), landscape buffers, shielded exterior lighting, screening of parking areas and inclusion of perimeter roads to allow maintenance of open space corridors.	**Consistent**. As discussed in Section 4.1, *Aesthetics/Visual Resources,* Mitigation Measures AES-1 through AES-4 require implementation of siting and design measures for development near the open space overlay, retention basin design measures, median and landscape design measures, and infrastructure screening. Mitigation Measure AES-2(a) would also be required and would require that all new development adjacent to areas within the open space overlay shall be sited and designed in such a manner to protect and enhance the visual character of the overlay area through use of landscape buffers, shielding of night

	lighting, screening of parking areas, and unit orientation. In semi-rural areas, natural building materials and colors compatible with surrounding terrain (i.e., earth tones and non-reflective paints) shall be used on exterior surfaces of all structures, including water tanks and fences. The project would also include preparation of a landscaping plan for review and approval by Planning and Development and the North County Board of Architectural Review. In addition, as discussed in Section 4.2, *Agricultural Resources*, the project includes a 200-foot wide agricultural buffer along the eastern and western edges of the proposed development area between the planned residential development and existing cultivated agricultural fields located on adjacent parcels to the east and west. The project also includes a 100-foot buffer along the eastern, western, and southern edges of the proposed development area between the planned residential development and existing grazing lands. No buildings or structures would be permitted in the agricultural buffer areas.
Policy VIS-O-2. Prominent public view corridors (U.S. 101, State Routes 1 & 135, Clark Ave., Santa Maria Way, and Union Valley Parkway) and public viewsheds (Orcutt/Solomon Hills, Casmalia Hills, and Orcutt Creek) shall be protected. **DevStd VIS-O-2.1.** Development shall be sited and designed to minimize the disruption of important public view corridors and viewsheds through building orientation, minimization of grading on slopes, landscaping, and minimization of sound walls. **DevStd VIS-O-2.2.** New homes on lots on the edge of bluff tops and canyon walls along significant open space/view corridors shall be of single story or partial second story design to minimize impacts to public view corridors (i.e., public roads, trails, etc.)	**Consistent.** As discussed above and in Section 4.1, *Aesthetics/Visual Resources*, the proposed project would alter views of the Casmalia Hills and the surrounding scenic vistas from SR 1 by developing residential units in existing viewsheds that are currently dominated by open space. However, the proposed residential structures would be limited to a maximum building height of 35 feet, with a single-story restriction on lots immediately adjacent to the RMGC public golf course fairway and would generally not obstruct the horizon line of the Casmalia Hills from RMGC or SR 1. Proposed landscaping would also provide screening for views of the proposed residential structures from the public golf course. The alteration in views would not constitute a substantial obstruction or damage to scenic resources for motorists on SR 1 or users of the golf course. No fill material would be imported to or exported from Key Site 21, and no fill material would be placed in the undeveloped natural open space areas. In both neighborhoods, slopes would be contoured to provide smooth transitions between the graded areas and the adjacent natural land contours.
Policy VIS-4. Public and private stormwater systems (recharge, retention, and retardation basins, culverts, channels, etc.) shall be designed and maintained to be visually attractive. **Dev Std VIS-O-4.1.** Basins shall be engineered so that perimeter fencing is minimized. Where required, perimeter fencing shall be unobtrusive (while minimizing interference with wildlife movement on rural parcels). Perimeter landscaping of basins shall consist of low maintenance trees, shrubs, turf, etc., and on public basins should be designed to accommodate recreational uses where appropriate. Landscaping and fencing within the	**Consistent.** The proposed project would include on-site bio-retention facilities and LID features designed to comply with the requirements of the Santa Barbara County Flood Control District (SBCFCD) and the Central Coast Regional Water Quality Control Board (RWQCB). As a result, these facilities would be designed and maintained in a manner that does not present unusual or unattractive features. As discussed in Section 4.14, *Water Resources and Flooding*, the OCP EIR identified measures that would minimize potential hydrological impacts, including fair share contribution to installation and maintenance for a regional retention basin and other design and maintenance requirements for regional retention basins

basins should be maintained through a Landscape-Open Space Maintenance District.	(FLD 3.1 through 3.5). The project would be required to comply with these measures. Furthermore, the proposed basins would be unfenced and would be landscaped with native, locally-collected plant species. The project would also include preparation of a landscaping plan for review and approval by Planning and Development and the North County Board of Architectural Review. The project landscape plan will include all landscape specifications required by Mitigation Measures AES-1 through AES-4 and BIO-6 and must be reviewed and approved by the Planning and Development Department in coordination with a County-approved biologist, pursuant to Mitigation Measure BIO-3(c).
Policy VIS-O-6. Outdoor lighting in Orcutt shall be designed and placed so as to minimize impacts on neighboring properties and the community in general. **DevStd VIS-O-6.1.** Low pressure sodium (LPS) lighting or other alternative methods used for street lighting, parking lot lighting and security lighting should be investigated by the Public Works Department to reduce off-site impacts from night lighting. **DevStd VIS-O-6.3.** Night lighting fixtures adjacent to residential areas shall be of the minimum height and intensity required for security/safety.	**Consistent.** As discussed in Section 4.1 *Aesthetics/ Visual Resources*, OCP Development Standards for Key Site 21 specifically address exterior lighting and ensure that it is minimized by design. Additionally, Mitigation Measures AES-2(a), requiring that all new development adjacent to areas within the open space overlay shall be sited and designed in such a manner to shield night lighting, and AES-3, requiring that exterior lighting shall be designed and constructed in such a manner to direct light overflow away from the open space areas, would reduce potential impacts from new sources of light and glare from the project.
Key Site 21	
Policy KS21-1. Parcel 113-250-14 is designated Open Space and zoned REC. The remainder of Key Site 21 is designated PD and Resort Visitor Serving Commercial and is zoned PRD (maximum 150 units). Any proposed development on KS-21 shall comply with the following standards (DevStd KS21-1 through DevStd KS21-11).	**Potentially Consistent (pending approval of applicant-requested OCP amendment).** The applicant has requested an amendment to the OCP, which would modify this policy to facilitate approval of a Specific Plan, two Vesting Tentative Tract Maps (VTTM), two Final Development Plans, two Minor Conditional Use Permits, road naming, and a Comprehensive Plan Amendment to develop 146 residential units in two residential neighborhoods on Key Site 21. With the approval of the requested Comprehensive Plan Amendments, revising the location of the trail head staging area and the proposed text amendment to DevStd KS 21-1, the project is consistent with Development Standards DevStd KS21-1 through DevStd KS 21-11.
DevStd KS21-1. No applications for development shall be accepted prior to approval of a Specific Plan for the entire site.	**Consistent.** The proposed project includes a Specific Plan (Case No. 16SPP-00000-00001) that provides for the design and regulatory framework to provide for orderly development including design guidelines for development, a public trail, and designated open space areas. As described in Section 2, *Project Description*, the proposed project includes a Comprehensive Plan text amendment to this development standard as follows: *DevStd KS21-1. No applications for development shall be ~~accepted~~ approved prior to approval of a Specific Plan for the entire site.*

	Consistent with the proposed amendments to this development standard, the proposed Specific Plan would be approved prior to the approval of the subject applications for development on the site.
DevStd KS21-2. Any Specific Plan application shall indicate the location of residential units and may indicate the location of up to 20 acres of Resort Visitor Serving Commercial uses. For every acre of Resort Visitor Serving use proposed, the maximum allowable number of residential units shall be decreased by four. If the full 20 acres of commercial is developed, the maximum number of residential units will be 70. Any proposed Resort Visitor Serving uses shall be integrated/coordinated with the preexisting golf course uses.	**Consistent**. As described in Section 2, *Project Description*, the proposed project includes two Vesting Tentative Tract Maps (VTTMs) and two Final Development Plans (Case Nos. 16DVP-00000-00008 and 17DVP-00000-00011) indicating the location of the proposed residential lots on Key Site 21. The project does not include commercial or Resort Visitor Serving uses.
DevStd KS21-3. If a Specific Plan is adopted which includes Resort Visitor Serving Commercial, the County shall rezone portions of the property to CV as necessary to be consistent with the adopted Specific Plan.	
DevStd KS21-4. The area depicted in Figure KS21-1 shall remain in natural, undeveloped open space. No development except trails or a roadway parcel to 113-250-17 and/or the existing parking lot shall be permitted within this open space and no structures shall be permitted within 50 feet of the top of the creek bank. The 50-foot setback shall be delineated by a low fence and plantings of native trees and shrubs.	**Consistent.** The proposed Specific Plan includes 96.7 acres of undisturbed open space 29.8 acres of privately managed open space in the two neighborhoods (12.5 acres of natural open space would be located on APN 113-250-015, which is included in the Specific Plan, but is not a part of either of the proposed VTTMs). These undisturbed open spaces comprise approximately 51 percent of the overall Specific Plan area. The project also includes approximately 29.8 acres of privately managed open space that includes landscape, trailhead, trails, and fuel modification areas. As discussed in Section 4.14, *Water Resources and Flooding*, the project does not include development within the Orcutt Creek floodplain, which ranges from 250 to 2,000 feet wide along Orcutt Creek. Therefore, no structures associated with the project would occur within the required 50-foot setback from the top of the creek bank.
DevStd KS21-5. The developer shall dedicate an easement for and construct a public staging area and hiking trail along the east side of the site boundary as depicted on Figure KS21-1.	**Consistent.** As described in Section 4.12, *Public Services and Recreation*, the proposed Comprehensive Plan Amendment includes relocation of a trail staging area to the proposed Hidden Canyon neighborhood development area. The project also includes development of a public recreational trail that would located along the eastern project boundary, as shown on the OCP Figure KS21-1. The terminus of the trail would be at the access road for the Hidden Canyon Neighborhood subterranean water tank, approximately 750 feet north of the project's southern boundary. The Hidden Canyon tentative tract map includes an easement to the remaining 750 feet of trail corridor extending to the southeast corner of the project boundary. The Santa Barbara County Community Services Department, Park Division would be responsible for installing the balance of the trail at a future date as part of an overall project to extend the trail on the adjacent parcel to the south (Garciacelay, 2018).

DevStd KS21-6. Development along Highway 1 (SR 1) shall include installation and maintenance of an average 50-foot wide landscaped buffer along the highway with trees that would exceed 50 feet in height at maturity planted in clusters a maximum of every 100 feet (part of this screen may be developed in an easement secured from Caltrans, provided an adequate permanent buffer is ensured). The buffer shall be landscaped with a sufficient density of trees and shrubs to screen views of all parking areas and to break-up and screen views of development from Highway 1.	**Consistent.** Proposed development along SR 1 is limited to new access roads. Under the proposed tract maps, the nearest structures to SR 1 would be approximately 650 feet (in the Hidden Canyon Neighborhood) to 1,200 feet (in the Willow Creek Neighborhood) from the roadway. Mitigation Measure AES-4 would require that all proposed infrastructure visible from gateway roads, including the Hidden Valley and Willow Creek Neighborhoods driveways, shall be screened from viewers passing on SR 1. The project would include preparation of a landscaping plan for review and approval by Planning and Development and the North County Board of Architectural Review, consistent with the requirements of this development standard. The project landscape plan will include all landscape specifications required by Mitigation Measures AES-1 through AES-4 and BIO-6, including preparation of tree protection and replacement plans, and must be reviewed and approved by the Planning and Development Department in coordination with a County-approved biologist, pursuant to Mitigation Measure BIO-3(c). The tree replacement plan must include success criteria and required monitoring of planted trees for a minimum of seven years or until stasis has been determined by a certified arborist.
DevStd KS21-7. Residential units adjacent to the existing golf course should be designed to include private outdoor areas (eg: landscape buffering) and ensure safety from stray golf balls. Development shall be designed to facilitate pedestrian access to the golf course and accommodate continued use of the public golf course.	**Consistent.** As discussed in Section 4.1, *Aesthetics/Visual Resources*, proposed landscaping for the project would provide screening for views of the proposed residential structures from the public golf course. In addition, as discussed in Section 4.10, *Land Use*, the minimum rear yard setback for all lots would be ten feet. The proposed setbacks would provide a landscape buffer between the golf course fairway and the proposed housing. In addition, homes adjacent to the golf course fairway would be single-story to reduce impacts to the existing golf course use, related to privacy, shading, aesthetics and solar access. The proposed setbacks, in combination with the restriction to single-story homes adjacent to the golf course fairway, would result in quality of life impacts that are less than significant.
DevStd KS21-8. All development shall be sited to preserve the natural landforms of the site and minimize grading.	**Consistent.** The project would involve grading operations that would result in cut and fill of approximately 1,007,916 cy of soil material. The grading was designed to result in a balance of cut and fill between the two neighborhoods, and slopes would be contoured to the extent possible to provide smooth transitions between the graded areas and the adjacent natural land contours. Project construction activities would also be subject to the County's grading ordinance, which requires a grading permit and an Erosion and Sediment Control Plan.
DevStd KS21-9. The Specific Plan shall, to the maximum extent feasible, provide for coordinated access points on Highway 1 between the site and Key Site 22.	**Consistent.** Access to the site is proposed via one full-access connection to SR 1 at the western boundary of the site and one full-access connection to SR 1 between the RMGC entrance and the eastern boundary of the site (refer to Figure 2-3 and 2-4 in Section 2, *Project*

	Description, which show the development plans for the proposed neighborhoods). Secondary (emergency) access is proposed via a right-turn in-and-out only connection to SR 1 and a driveway that would extend from the RMGC parking lot. Access to the proposed Hidden Canyon neighborhood would also be coordinated with a future extension of Union Valley Parkway across Key Site 22.
DevStd KS21-10. The layout and design of the development should be compatible with golf course actions and minimize risks to occupants and visitors from golf course activity.	**Consistent.** The proposed landscaping for the project would provide screening for views of the proposed residential structures from the public golf course. In addition, the proposed setbacks would provide a landscape buffer between the golf course fairway and the proposed housing. Homes adjacent to the golf course fairways would be single-story to reduce impacts to the existing golf course use, related to privacy, shading, aesthetics and solar access. In order to minimize risks to occupants and visitors from golf course activities, the proposed project includes safety netting along the proposed Willow Creek ingress/egress adjacent to RMGC hole 15. The proposed primary access roadway design for the Willow Creek neighborhood would bisect a portion of the golf course fairway on the western portion of Key Site 21. This roadway would be located within an existing easement. The proposed safety netting and landscaping adjacent to this roadway would serve to minimize conflicts between errant golf balls and provide a buffer between golf course users and cars entering and existing the Willow Creek subdivision.
DevStd KS21-11. The development should minimize visual impacts to Highway 1 and the surrounding rural area through the use of low-profile design, earth tone colors and vegetated setbacks. The Specific Plan shall be reviewed for compatibility with adjoining agricultural uses.	**Consistent.** The project would include preparation of a landscaping plan for review and approval by the County Board of Architectural Review. The project would also include agricultural buffers along the eastern, western, and southern edges of the proposed development areas between the planned residential developments and existing cultivated agricultural and grazing lands. No buildings or structures would be permitted in the agricultural buffer areas. In addition, the proposed residential structures would be limited to a maximum building height of 35 feet and would not obstruct the horizon line of the Casmalia Hills from RMGC or SR 1. Proposed landscaping would also provide screening for views of the proposed residential structures from the public golf course. Furthermore, Mitigation Measures AES-1 through AES-4 require implementation of siting and design measures for development near the open space overlay, retention basin design measures, median and landscape design measures, and infrastructure screening that would minimize visual impacts of the proposed development from surrounding public viewpoints, including RMGC and SR 1.

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Appendix J

Noise Modeling Data

Noise Measurement 1

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 87.1 - 2018/12/19 07:50:33
- Level Range : 40-100
- SEL : 101.5
- Leq : 74.7
-

No.s	Date Time	(dB)
1	2018/12/19 07:47:17	77.3
2	2018/12/19 07:47:18	74.3
3	2018/12/19 07:47:19	67.3
4	2018/12/19 07:47:20	65.5
5	2018/12/19 07:47:21	64.2
6	2018/12/19 07:47:22	62.9
7	2018/12/19 07:47:23	63.7
8	2018/12/19 07:47:24	71.4
9	2018/12/19 07:47:25	78.0
10	2018/12/19 07:47:26	81.4
11	2018/12/19 07:47:27	81.5
12	2018/12/19 07:47:28	76.1
13	2018/12/19 07:47:29	74.6
14	2018/12/19 07:47:30	82.3
15	2018/12/19 07:47:31	82.4
16	2018/12/19 07:47:32	77.2
17	2018/12/19 07:47:33	69.8
18	2018/12/19 07:47:34	66.2
19	2018/12/19 07:47:35	77.1
20	2018/12/19 07:47:36	83.6
21	2018/12/19 07:47:37	76.2
22	2018/12/19 07:47:38	71.8
23	2018/12/19 07:47:39	75.6
24	2018/12/19 07:47:40	85.1
25	2018/12/19 07:47:41	77.0
26	2018/12/19 07:47:42	72.6
27	2018/12/19 07:47:43	69.6
28	2018/12/19 07:47:44	69.8
29	2018/12/19 07:47:45	67.0
30	2018/12/19 07:47:46	63.5
31	2018/12/19 07:47:47	64.3
32	2018/12/19 07:47:48	62.8
33	2018/12/19 07:47:49	61.3
34	2018/12/19 07:47:50	60.5
35	2018/12/19 07:47:51	59.7
36	2018/12/19 07:47:52	59.6
37	2018/12/19 07:47:53	59.2
38	2018/12/19 07:47:54	60.0
39	2018/12/19 07:47:55	59.9
40	2018/12/19 07:47:56	60.7
41	2018/12/19 07:47:57	62.0
42	2018/12/19 07:47:58	72.2
43	2018/12/19 07:47:59	81.3
44	2018/12/19 07:48:00	75.3
45	2018/12/19 07:48:01	72.2
46	2018/12/19 07:48:02	67.8
47	2018/12/19 07:48:03	65.4
48	2018/12/19 07:48:04	62.5
49	2018/12/19 07:48:05	64.1
50	2018/12/19 07:48:06	68.6
51	2018/12/19 07:48:07	79.9
52	2018/12/19 07:48:08	74.2
53	2018/12/19 07:48:09	69.6
54	2018/12/19 07:48:10	79.2
55	2018/12/19 07:48:11	80.1
56	2018/12/19 07:48:12	74.6
57	2018/12/19 07:48:13	69.0
58	2018/12/19 07:48:14	78.2
59	2018/12/19 07:48:15	64.6
60	2018/12/19 07:48:16	76.5
61	2018/12/19 07:48:17	82.9
62	2018/12/19 07:48:18	81.4
63	2018/12/19 07:48:19	80.2
64	2018/12/19 07:48:20	71.8
65	2018/12/19 07:48:21	67.3
66	2018/12/19 07:48:22	63.6
67	2018/12/19 07:48:23	64.6
68	2018/12/19 07:48:24	63.8
69	2018/12/19 07:48:25	60.7
70	2018/12/19 07:48:26	58.3
71	2018/12/19 07:48:27	60.4
72	2018/12/19 07:48:28	60.0
73	2018/12/19 07:48:29	60.6
74	2018/12/19 07:48:30	60.3
75	2018/12/19 07:48:31	62.5
76	2018/12/19 07:48:32	69.2
77	2018/12/19 07:48:33	80.7
78	2018/12/19 07:48:34	78.2
79	2018/12/19 07:48:35	71.6
80	2018/12/19 07:48:36	81.0
81	2018/12/19 07:48:37	72.7
82	2018/12/19 07:48:38	70.5
83	2018/12/19 07:48:39	65.1
84	2018/12/19 07:48:40	61.0
85	2018/12/19 07:48:41	58.0

86	2018/12/19	07:48:42	57.1
87	2018/12/19	07:48:43	59.6
88	2018/12/19	07:48:44	64.0
89	2018/12/19	07:48:45	74.6
90	2018/12/19	07:48:46	83.7
91	2018/12/19	07:48:47	74.7
92	2018/12/19	07:48:48	78.6
93	2018/12/19	07:48:49	84.8
94	2018/12/19	07:48:50	81.4
95	2018/12/19	07:48:51	80.0
96	2018/12/19	07:48:52	80.4
97	2018/12/19	07:48:53	72.1
98	2018/12/19	07:48:54	68.6
99	2018/12/19	07:48:55	65.5
100	2018/12/19	07:48:56	63.7
101	2018/12/19	07:48:57	62.5
102	2018/12/19	07:48:58	61.2
103	2018/12/19	07:48:59	60.5
104	2018/12/19	07:49:00	58.1
105	2018/12/19	07:49:01	57.6
106	2018/12/19	07:49:02	57.3
107	2018/12/19	07:49:03	58.8
108	2018/12/19	07:49:04	62.9
109	2018/12/19	07:49:05	64.9
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115	2018/12/19	07:49:11	75.7
116	2018/12/19	07:49:12	72.4
117	2018/12/19	07:49:13	66.0
118	2018/12/19	07:49:14	63.3
119	2018/12/19	07:49:15	60.2
120	2018/12/19	07:49:16	57.9
121	2018/12/19	07:49:17	57.2
122	2018/12/19	07:49:18	55.8
123	2018/12/19	07:49:19	54.2
124	2018/12/19	07:49:20	53.8
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129	2018/12/19	07:49:25	57.3
130	2018/12/19	07:49:26	56.1
131	2018/12/19	07:49:27	58.2
132	2018/12/19	07:49:28	60.2
133	2018/12/19	07:49:29	61.1
134	2018/12/19	07:49:30	66.6
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150	2018/12/19	07:49:46	56.8
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281	2018/12/19 07:51:57	80.5
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284	2018/12/19 07:52:00	68.9
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321	2018/12/19 07:52:37	60.7
322	2018/12/19 07:52:38	60.4
323	2018/12/19 07:52:39	59.5
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326	2018/12/19 07:52:42	58.0
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328	2018/12/19 07:52:44	56.5
329	2018/12/19 07:52:45	55.6
330	2018/12/19 07:52:46	55.9
331	2018/12/19 07:52:47	56.4
332	2018/12/19 07:52:48	56.5
333	2018/12/19 07:52:49	53.7
334	2018/12/19 07:52:50	52.3
335	2018/12/19 07:52:51	53.6
336	2018/12/19 07:52:52	53.4
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339	2018/12/19 07:52:55	52.6
340	2018/12/19 07:52:56	53.4
341	2018/12/19 07:52:57	53.4
342	2018/12/19 07:52:58	55.9
343	2018/12/19 07:52:59	59.0
344	2018/12/19 07:53:00	58.2
345	2018/12/19 07:53:01	57.3
346	2018/12/19 07:53:02	55.8
347	2018/12/19 07:53:03	56.2
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349	2018/12/19 07:53:05	61.9
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351	2018/12/19 07:53:07	62.9
352	2018/12/19 07:53:08	66.2
353	2018/12/19 07:53:09	74.6
354	2018/12/19 07:53:10	80.9
355	2018/12/19 07:53:11	74.3
356	2018/12/19 07:53:12	68.7
357	2018/12/19 07:53:13	62.3
358	2018/12/19 07:53:14	63.0
359	2018/12/19 07:53:15	60.4
360	2018/12/19 07:53:16	63.8
361	2018/12/19 07:53:17	74.0
362	2018/12/19 07:53:18	80.7
363	2018/12/19 07:53:19	72.7
364	2018/12/19 07:53:20	82.2
365	2018/12/19 07:53:21	76.5
366	2018/12/19 07:53:22	70.2
367	2018/12/19 07:53:23	63.2
368	2018/12/19 07:53:24	64.0
369	2018/12/19 07:53:25	62.6
370	2018/12/19 07:53:26	61.6
371	2018/12/19 07:53:27	59.1
372	2018/12/19 07:53:28	56.3
373	2018/12/19 07:53:29	57.0
374	2018/12/19 07:53:30	57.8
375	2018/12/19 07:53:31	57.9
376	2018/12/19 07:53:32	57.2
377	2018/12/19 07:53:33	56.1
378	2018/12/19 07:53:34	55.9
379	2018/12/19 07:53:35	58.0
380	2018/12/19 07:53:36	60.6
381	2018/12/19 07:53:37	65.2
382	2018/12/19 07:53:38	75.0

383	2018/12/19 07:53:39	82.8
384	2018/12/19 07:53:40	69.7
385	2018/12/19 07:53:41	64.2
386	2018/12/19 07:53:42	58.3
387	2018/12/19 07:53:43	56.7
388	2018/12/19 07:53:44	56.6
389	2018/12/19 07:53:45	56.2
390	2018/12/19 07:53:46	55.3
391	2018/12/19 07:53:47	54.9
392	2018/12/19 07:53:48	55.7
393	2018/12/19 07:53:49	54.0
394	2018/12/19 07:53:50	55.9
395	2018/12/19 07:53:51	55.4
396	2018/12/19 07:53:52	53.3
397	2018/12/19 07:53:53	50.5
398	2018/12/19 07:53:54	49.6
399	2018/12/19 07:53:55	48.2
400	2018/12/19 07:53:56	47.5
401	2018/12/19 07:53:57	48.2
402	2018/12/19 07:53:58	48.0
403	2018/12/19 07:53:59	48.9
404	2018/12/19 07:54:00	50.1
405	2018/12/19 07:54:01	55.2
406	2018/12/19 07:54:02	59.8
407	2018/12/19 07:54:03	61.5
408	2018/12/19 07:54:04	69.5
409	2018/12/19 07:54:05	80.6
410	2018/12/19 07:54:06	73.5
411	2018/12/19 07:54:07	65.6
412	2018/12/19 07:54:08	61.3
413	2018/12/19 07:54:09	56.8
414	2018/12/19 07:54:10	55.4
415	2018/12/19 07:54:11	54.9
416	2018/12/19 07:54:12	54.8
417	2018/12/19 07:54:13	58.2
418	2018/12/19 07:54:14	58.0
419	2018/12/19 07:54:15	56.9
420	2018/12/19 07:54:16	57.1
421	2018/12/19 07:54:17	58.1
422	2018/12/19 07:54:18	59.8
423	2018/12/19 07:54:19	63.6
424	2018/12/19 07:54:20	64.0
425	2018/12/19 07:54:21	71.0
426	2018/12/19 07:54:22	76.3
427	2018/12/19 07:54:23	78.1
428	2018/12/19 07:54:24	72.5
429	2018/12/19 07:54:25	67.9
430	2018/12/19 07:54:26	64.8
431	2018/12/19 07:54:27	65.2
432	2018/12/19 07:54:28	62.5
433	2018/12/19 07:54:29	67.3
434	2018/12/19 07:54:30	76.4
435	2018/12/19 07:54:31	79.9
436	2018/12/19 07:54:32	71.1
437	2018/12/19 07:54:33	66.0
438	2018/12/19 07:54:34	63.2
439	2018/12/19 07:54:35	62.4
440	2018/12/19 07:54:36	63.7
441	2018/12/19 07:54:37	74.0
442	2018/12/19 07:54:38	79.3
443	2018/12/19 07:54:39	73.8
444	2018/12/19 07:54:40	74.8
445	2018/12/19 07:54:41	80.6
446	2018/12/19 07:54:42	81.2
447	2018/12/19 07:54:43	74.6
448	2018/12/19 07:54:44	70.8
449	2018/12/19 07:54:45	66.4
450	2018/12/19 07:54:46	64.7
451	2018/12/19 07:54:47	75.3
452	2018/12/19 07:54:48	79.1
453	2018/12/19 07:54:49	68.5
454	2018/12/19 07:54:50	65.5
455	2018/12/19 07:54:51	73.7
456	2018/12/19 07:54:52	80.7
457	2018/12/19 07:54:53	80.4
458	2018/12/19 07:54:54	73.9
459	2018/12/19 07:54:55	66.9
460	2018/12/19 07:54:56	65.0
461	2018/12/19 07:54:57	63.5
462	2018/12/19 07:54:58	60.5
463	2018/12/19 07:54:59	59.8
464	2018/12/19 07:55:00	60.0
465	2018/12/19 07:55:01	59.9
466	2018/12/19 07:55:02	62.5
467	2018/12/19 07:55:03	62.4
468	2018/12/19 07:55:04	64.1
469	2018/12/19 07:55:05	66.6
470	2018/12/19 07:55:06	72.7
471	2018/12/19 07:55:07	80.1
472	2018/12/19 07:55:08	78.6
473	2018/12/19 07:55:09	81.6
474	2018/12/19 07:55:10	77.0
475	2018/12/19 07:55:11	74.8
476	2018/12/19 07:55:12	83.2
477	2018/12/19 07:55:13	78.5
478	2018/12/19 07:55:14	71.3
479	2018/12/19 07:55:15	66.0
480	2018/12/19 07:55:16	71.2
481	2018/12/19 07:55:17	79.6

482	2018/12/19 07:55:18	80.9
483	2018/12/19 07:55:19	79.6
484	2018/12/19 07:55:20	78.7
485	2018/12/19 07:55:21	74.6

Noise Measurement 2

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 98.9 - 2009/04/01 00:15:19
- Level Range : 40-100
- SEL : 104.2
- Leq : 74.7
-

No.s	Date Time	(dB)
1	2009/04/01 00:02:09	71.7
2	2009/04/01 00:02:10	66.7
3	2009/04/01 00:02:11	61.1
4	2009/04/01 00:02:12	59.9
5	2009/04/01 00:02:13	61.8
6	2009/04/01 00:02:14	64.9
7	2009/04/01 00:02:15	77.2
8	2009/04/01 00:02:16	78.5
9	2009/04/01 00:02:17	70.1
10	2009/04/01 00:02:18	63.4
11	2009/04/01 00:02:19	62.7
12	2009/04/01 00:02:20	65.3
13	2009/04/01 00:02:21	76.6
14	2009/04/01 00:02:22	79.5
15	2009/04/01 00:02:23	72.4
16	2009/04/01 00:02:24	67.5
17	2009/04/01 00:02:25	62.4
18	2009/04/01 00:02:26	63.6
19	2009/04/01 00:02:27	69.6
20	2009/04/01 00:02:28	76.2
21	2009/04/01 00:02:29	82.4
22	2009/04/01 00:02:30	75.8
23	2009/04/01 00:02:31	69.3
24	2009/04/01 00:02:32	64.2
25	2009/04/01 00:02:33	64.3
26	2009/04/01 00:02:34	64.0
27	2009/04/01 00:02:35	71.1
28	2009/04/01 00:02:36	84.1
29	2009/04/01 00:02:37	78.6
30	2009/04/01 00:02:38	69.6
31	2009/04/01 00:02:39	63.9
32	2009/04/01 00:02:40	62.1
33	2009/04/01 00:02:41	59.8
34	2009/04/01 00:02:42	56.8
35	2009/04/01 00:02:43	58.5
36	2009/04/01 00:02:44	57.8
37	2009/04/01 00:02:45	56.4
38	2009/04/01 00:02:46	58.3
39	2009/04/01 00:02:47	65.9
40	2009/04/01 00:02:48	59.7
41	2009/04/01 00:02:49	64.5
42	2009/04/01 00:02:50	65.6
43	2009/04/01 00:02:51	57.2
44	2009/04/01 00:02:52	57.3
45	2009/04/01 00:02:53	61.4
46	2009/04/01 00:02:54	61.9
47	2009/04/01 00:02:55	61.5
48	2009/04/01 00:02:56	59.9
49	2009/04/01 00:02:57	62.4
50	2009/04/01 00:02:58	69.5
51	2009/04/01 00:02:59	76.4
52	2009/04/01 00:03:00	80.3
53	2009/04/01 00:03:01	72.2
54	2009/04/01 00:03:02	69.2
55	2009/04/01 00:03:03	63.2
56	2009/04/01 00:03:04	61.1
57	2009/04/01 00:03:05	59.7
58	2009/04/01 00:03:06	58.0
59	2009/04/01 00:03:07	56.9
60	2009/04/01 00:03:08	57.2
61	2009/04/01 00:03:09	57.6
62	2009/04/01 00:03:10	60.5
63	2009/04/01 00:03:11	59.6
64	2009/04/01 00:03:12	59.8
65	2009/04/01 00:03:13	60.3
66	2009/04/01 00:03:14	60.5
67	2009/04/01 00:03:15	59.1
68	2009/04/01 00:03:16	63.5
69	2009/04/01 00:03:17	67.9
70	2009/04/01 00:03:18	68.1
71	2009/04/01 00:03:19	70.3
72	2009/04/01 00:03:20	80.0
73	2009/04/01 00:03:21	84.8
74	2009/04/01 00:03:22	76.3
75	2009/04/01 00:03:23	68.8
76	2009/04/01 00:03:24	63.7
77	2009/04/01 00:03:25	61.7
78	2009/04/01 00:03:26	66.9
79	2009/04/01 00:03:27	71.5
80	2009/04/01 00:03:28	77.6
81	2009/04/01 00:03:29	79.6
82	2009/04/01 00:03:30	80.2
83	2009/04/01 00:03:31	76.4
84	2009/04/01 00:03:32	68.4
85	2009/04/01 00:03:33	63.3

86	2009/04/01 00:03:34	59.1
87	2009/04/01 00:03:35	58.6
88	2009/04/01 00:03:36	57.4
89	2009/04/01 00:03:37	56.4
90	2009/04/01 00:03:38	56.2
91	2009/04/01 00:03:39	56.5
92	2009/04/01 00:03:40	55.7
93	2009/04/01 00:03:41	53.7
94	2009/04/01 00:03:42	51.7
95	2009/04/01 00:03:43	50.6
96	2009/04/01 00:03:44	49.4
97	2009/04/01 00:03:45	48.4
98	2009/04/01 00:03:46	47.8
99	2009/04/01 00:03:47	49.8
100	2009/04/01 00:03:48	51.2
101	2009/04/01 00:03:49	51.6
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103	2009/04/01 00:03:51	55.6
104	2009/04/01 00:03:52	55.9
105	2009/04/01 00:03:53	56.4
106	2009/04/01 00:03:54	54.3
107	2009/04/01 00:03:55	52.4
108	2009/04/01 00:03:56	52.8
109	2009/04/01 00:03:57	51.3
110	2009/04/01 00:03:58	51.6
111	2009/04/01 00:03:59	51.6
112	2009/04/01 00:04:00	51.5
113	2009/04/01 00:04:01	53.4
114	2009/04/01 00:04:02	57.6
115	2009/04/01 00:04:03	63.3
116	2009/04/01 00:04:04	68.1
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123	2009/04/01 00:04:11	56.4
124	2009/04/01 00:04:12	54.8
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127	2009/04/01 00:04:15	50.0
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129	2009/04/01 00:04:17	54.6
130	2009/04/01 00:04:18	54.4
131	2009/04/01 00:04:19	55.5
132	2009/04/01 00:04:20	55.9
133	2009/04/01 00:04:21	55.9
134	2009/04/01 00:04:22	57.4
135	2009/04/01 00:04:23	59.2
136	2009/04/01 00:04:24	60.8
137	2009/04/01 00:04:25	65.2
138	2009/04/01 00:04:26	64.8
139	2009/04/01 00:04:27	67.2
140	2009/04/01 00:04:28	71.4
141	2009/04/01 00:04:29	79.7
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151	2009/04/01 00:04:39	60.1
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163	2009/04/01 00:04:51	67.4
164	2009/04/01 00:04:52	66.0
165	2009/04/01 00:04:53	63.3
166	2009/04/01 00:04:54	63.0
167	2009/04/01 00:04:55	59.8
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169	2009/04/01 00:04:57	60.4
170	2009/04/01 00:04:58	60.0
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172	2009/04/01 00:05:00	59.7
173	2009/04/01 00:05:01	57.9
174	2009/04/01 00:05:02	56.0
175	2009/04/01 00:05:03	53.9
176	2009/04/01 00:05:04	54.3
177	2009/04/01 00:05:05	52.9
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193	2009/04/01 00:05:21	57.5
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201	2009/04/01 00:05:29	69.6
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224	2009/04/01 00:05:52	51.2
225	2009/04/01 00:05:53	51.8
226	2009/04/01 00:05:54	52.2
227	2009/04/01 00:05:55	52.4
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232	2009/04/01 00:06:00	54.5
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234	2009/04/01 00:06:02	51.2
235	2009/04/01 00:06:03	48.8
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239	2009/04/01 00:06:07	53.7
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241	2009/04/01 00:06:09	59.0
242	2009/04/01 00:06:10	60.9
243	2009/04/01 00:06:11	64.2
244	2009/04/01 00:06:12	64.6
245	2009/04/01 00:06:13	70.0
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247	2009/04/01 00:06:15	78.9
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249	2009/04/01 00:06:17	64.4
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260	2009/04/01 00:06:28	50.7
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281	2009/04/01 00:06:49	77.2
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283	2009/04/01 00:06:51	75.2

284	2009/04/01 00:06:52	70.4
285	2009/04/01 00:06:53	65.4
286	2009/04/01 00:06:54	62.3
287	2009/04/01 00:06:55	62.7
288	2009/04/01 00:06:56	63.3
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290	2009/04/01 00:06:58	59.4
291	2009/04/01 00:06:59	58.4
292	2009/04/01 00:07:00	62.7
293	2009/04/01 00:07:01	67.6
294	2009/04/01 00:07:02	75.4
295	2009/04/01 00:07:03	81.1
296	2009/04/01 00:07:04	74.7
297	2009/04/01 00:07:05	70.4
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299	2009/04/01 00:07:07	80.8
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312	2009/04/01 00:07:20	74.2
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745	2009/04/01	00:14:33	58.5
746	2009/04/01	00:14:34	57.9
747	2009/04/01	00:14:35	57.0
748	2009/04/01	00:14:36	56.2
749	2009/04/01	00:14:37	56.8
750	2009/04/01	00:14:38	57.2
751	2009/04/01	00:14:39	59.8
752	2009/04/01	00:14:40	61.3
753	2009/04/01	00:14:41	61.8
754	2009/04/01	00:14:42	64.6
755	2009/04/01	00:14:43	61.5
756	2009/04/01	00:14:44	62.3
757	2009/04/01	00:14:45	65.7
758	2009/04/01	00:14:46	72.9
759	2009/04/01	00:14:47	80.7
760	2009/04/01	00:14:48	79.5
761	2009/04/01	00:14:49	83.6
762	2009/04/01	00:14:50	78.6
763	2009/04/01	00:14:51	73.4
764	2009/04/01	00:14:52	67.1
765	2009/04/01	00:14:53	64.9
766	2009/04/01	00:14:54	62.4
767	2009/04/01	00:14:55	62.7
768	2009/04/01	00:14:56	66.4
769	2009/04/01	00:14:57	72.2
770	2009/04/01	00:14:58	85.3
771	2009/04/01	00:14:59	88.3
772	2009/04/01	00:15:00	77.2
773	2009/04/01	00:15:01	78.7
774	2009/04/01	00:15:02	73.4
775	2009/04/01	00:15:03	69.8
776	2009/04/01	00:15:04	67.5
777	2009/04/01	00:15:05	77.2
778	2009/04/01	00:15:06	79.9

779	2009/04/01 00:15:07	74.6
780	2009/04/01 00:15:08	80.7
781	2009/04/01 00:15:09	74.0
782	2009/04/01 00:15:10	69.0
783	2009/04/01 00:15:11	65.9
784	2009/04/01 00:15:12	67.9
785	2009/04/01 00:15:13	77.0
786	2009/04/01 00:15:14	80.8
787	2009/04/01 00:15:15	83.7
788	2009/04/01 00:15:16	76.8
789	2009/04/01 00:15:17	80.0
790	2009/04/01 00:15:18	96.9
791	2009/04/01 00:15:19	83.5
792	2009/04/01 00:15:20	86.0
793	2009/04/01 00:15:21	75.1
794	2009/04/01 00:15:22	76.7
795	2009/04/01 00:15:23	83.7
796	2009/04/01 00:15:24	74.1
797	2009/04/01 00:15:25	70.1
798	2009/04/01 00:15:26	68.6
799	2009/04/01 00:15:27	77.3
800	2009/04/01 00:15:28	82.4
801	2009/04/01 00:15:29	79.7
802	2009/04/01 00:15:30	72.8
803	2009/04/01 00:15:31	69.1
804	2009/04/01 00:15:32	63.8
805	2009/04/01 00:15:33	63.1
806	2009/04/01 00:15:34	62.3
807	2009/04/01 00:15:35	62.4
808	2009/04/01 00:15:36	64.0
809	2009/04/01 00:15:37	61.5
810	2009/04/01 00:15:38	61.8
811	2009/04/01 00:15:39	67.1
812	2009/04/01 00:15:40	75.8
813	2009/04/01 00:15:41	79.4
814	2009/04/01 00:15:42	72.5
815	2009/04/01 00:15:43	68.9
816	2009/04/01 00:15:44	67.1
817	2009/04/01 00:15:45	65.0
818	2009/04/01 00:15:46	63.4
819	2009/04/01 00:15:47	61.8
820	2009/04/01 00:15:48	65.6
821	2009/04/01 00:15:49	70.9
822	2009/04/01 00:15:50	80.3
823	2009/04/01 00:15:51	83.0
824	2009/04/01 00:15:52	77.1
825	2009/04/01 00:15:53	71.6
826	2009/04/01 00:15:54	67.7
827	2009/04/01 00:15:55	65.5
828	2009/04/01 00:15:56	64.6
829	2009/04/01 00:15:57	67.6
830	2009/04/01 00:15:58	72.4
831	2009/04/01 00:15:59	80.0
832	2009/04/01 00:16:00	87.8
833	2009/04/01 00:16:01	75.6
834	2009/04/01 00:16:02	81.9
835	2009/04/01 00:16:03	82.8
836	2009/04/01 00:16:04	74.6
837	2009/04/01 00:16:05	71.5
838	2009/04/01 00:16:06	66.6
839	2009/04/01 00:16:07	64.1
840	2009/04/01 00:16:08	62.3
841	2009/04/01 00:16:09	60.0
842	2009/04/01 00:16:10	60.6
843	2009/04/01 00:16:11	60.3
844	2009/04/01 00:16:12	60.8
845	2009/04/01 00:16:13	63.3
846	2009/04/01 00:16:14	64.2
847	2009/04/01 00:16:15	70.9
848	2009/04/01 00:16:16	84.5
849	2009/04/01 00:16:17	78.5
850	2009/04/01 00:16:18	70.3
851	2009/04/01 00:16:19	66.1
852	2009/04/01 00:16:20	64.4
853	2009/04/01 00:16:21	64.1
854	2009/04/01 00:16:22	64.4
855	2009/04/01 00:16:23	66.5
856	2009/04/01 00:16:24	69.5
857	2009/04/01 00:16:25	78.5
858	2009/04/01 00:16:26	87.4
859	2009/04/01 00:16:27	81.0
860	2009/04/01 00:16:28	76.9
861	2009/04/01 00:16:29	75.4
862	2009/04/01 00:16:30	69.0
863	2009/04/01 00:16:31	68.0
864	2009/04/01 00:16:32	72.1
865	2009/04/01 00:16:33	78.9
866	2009/04/01 00:16:34	80.6
867	2009/04/01 00:16:35	74.0
868	2009/04/01 00:16:36	75.6
869	2009/04/01 00:16:37	82.3
870	2009/04/01 00:16:38	78.2
871	2009/04/01 00:16:39	72.0
872	2009/04/01 00:16:40	67.8
873	2009/04/01 00:16:41	63.2
874	2009/04/01 00:16:42	62.1
875	2009/04/01 00:16:43	59.3
876	2009/04/01 00:16:44	56.7
877	2009/04/01 00:16:45	56.1

878	2009/04/01	00:16:46	56.7
879	2009/04/01	00:16:47	56.6
880	2009/04/01	00:16:48	57.2
881	2009/04/01	00:16:49	57.8
882	2009/04/01	00:16:50	60.8
883	2009/04/01	00:16:51	65.1
884	2009/04/01	00:16:52	75.5
885	2009/04/01	00:16:53	81.5
886	2009/04/01	00:16:54	76.0
887	2009/04/01	00:16:55	70.1
888	2009/04/01	00:16:56	65.0
889	2009/04/01	00:16:57	63.2
890	2009/04/01	00:16:58	61.0
891	2009/04/01	00:16:59	62.2
892	2009/04/01	00:17:00	60.7
893	2009/04/01	00:17:01	61.7
894	2009/04/01	00:17:02	62.7
895	2009/04/01	00:17:03	71.6
896	2009/04/01	00:17:04	80.4
897	2009/04/01	00:17:05	75.2
898	2009/04/01	00:17:06	69.4
899	2009/04/01	00:17:07	66.2
900	2009/04/01	00:17:08	64.8

Noise Measurement 3

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 61.8 - 2009/04/01 00:30:07
- Level Range : 40-100
- SEL : 70.9
- Leq : 41.4
-

No.s	Date Time	(dB)
1	2009/04/01 00:30:03	43.8
2	2009/04/01 00:30:04	43.3
3	2009/04/01 00:30:05	42.8
4	2009/04/01 00:30:06	42.8
5	2009/04/01 00:30:07	42.5
6	2009/04/01 00:30:08	41.2
7	2009/04/01 00:30:09	42.5
8	2009/04/01 00:30:10	41.6
9	2009/04/01 00:30:11	41.6
10	2009/04/01 00:30:12	40.8
11	2009/04/01 00:30:13	40.4
12	2009/04/01 00:30:14	44.2
13	2009/04/01 00:30:15	43.8
14	2009/04/01 00:30:16	42.7
15	2009/04/01 00:30:17	41.4
16	2009/04/01 00:30:18	41.9
17	2009/04/01 00:30:19	42.1
18	2009/04/01 00:30:20	43.4
19	2009/04/01 00:30:21	40.8
20	2009/04/01 00:30:22	40.6
21	2009/04/01 00:30:23	40.9
22	2009/04/01 00:30:24	40.9
23	2009/04/01 00:30:25	40.9
24	2009/04/01 00:30:26	42.0
25	2009/04/01 00:30:27	42.7
26	2009/04/01 00:30:28	43.5
27	2009/04/01 00:30:29	43.5
28	2009/04/01 00:30:30	41.4
29	2009/04/01 00:30:31	40.8
30	2009/04/01 00:30:32	42.3
31	2009/04/01 00:30:33	40.8
32	2009/04/01 00:30:34	41.4
33	2009/04/01 00:30:35	41.1
34	2009/04/01 00:30:36	40.1
35	2009/04/01 00:30:37	38.9
36	2009/04/01 00:30:38	39.4
37	2009/04/01 00:30:39	39.6
38	2009/04/01 00:30:40	38.9
39	2009/04/01 00:30:41	38.8
40	2009/04/01 00:30:42	38.9
41	2009/04/01 00:30:43	40.7
42	2009/04/01 00:30:44	39.6
43	2009/04/01 00:30:45	39.6
44	2009/04/01 00:30:46	41.7
45	2009/04/01 00:30:47	40.9
46	2009/04/01 00:30:48	42.1
47	2009/04/01 00:30:49	43.7
48	2009/04/01 00:30:50	43.4
49	2009/04/01 00:30:51	41.3
50	2009/04/01 00:30:52	42.0
51	2009/04/01 00:30:53	41.3
52	2009/04/01 00:30:54	43.1
53	2009/04/01 00:30:55	43.4
54	2009/04/01 00:30:56	41.3
55	2009/04/01 00:30:57	41.2
56	2009/04/01 00:30:58	42.7
57	2009/04/01 00:30:59	45.9
58	2009/04/01 00:31:00	42.0
59	2009/04/01 00:31:01	41.8
60	2009/04/01 00:31:02	44.5
61	2009/04/01 00:31:03	42.1
62	2009/04/01 00:31:04	42.4
63	2009/04/01 00:31:05	43.0
64	2009/04/01 00:31:06	41.4
65	2009/04/01 00:31:07	40.4
66	2009/04/01 00:31:08	39.6
67	2009/04/01 00:31:09	39.3
68	2009/04/01 00:31:10	39.5
69	2009/04/01 00:31:11	39.2
70	2009/04/01 00:31:12	39.6
71	2009/04/01 00:31:13	40.2
72	2009/04/01 00:31:14	42.3
73	2009/04/01 00:31:15	42.6
74	2009/04/01 00:31:16	42.5
75	2009/04/01 00:31:17	41.6
76	2009/04/01 00:31:18	40.8
77	2009/04/01 00:31:19	40.5
78	2009/04/01 00:31:20	41.2
79	2009/04/01 00:31:21	42.1
80	2009/04/01 00:31:22	40.2
81	2009/04/01 00:31:23	39.8
82	2009/04/01 00:31:24	40.3
83	2009/04/01 00:31:25	42.7
84	2009/04/01 00:31:26	41.2
85	2009/04/01 00:31:27	40.3

86	2009/04/01 00:31:28	40.3
87	2009/04/01 00:31:29	40.0
88	2009/04/01 00:31:30	41.2
89	2009/04/01 00:31:31	40.8
90	2009/04/01 00:31:32	41.2
91	2009/04/01 00:31:33	41.3
92	2009/04/01 00:31:34	42.5
93	2009/04/01 00:31:35	41.9
94	2009/04/01 00:31:36	41.7
95	2009/04/01 00:31:37	42.2
96	2009/04/01 00:31:38	45.4
97	2009/04/01 00:31:39	46.6
98	2009/04/01 00:31:40	45.0
99	2009/04/01 00:31:41	42.1
100	2009/04/01 00:31:42	41.5
101	2009/04/01 00:31:43	41.1
102	2009/04/01 00:31:44	41.8
103	2009/04/01 00:31:45	41.4
104	2009/04/01 00:31:46	40.8
105	2009/04/01 00:31:47	40.8
106	2009/04/01 00:31:48	41.5
107	2009/04/01 00:31:49	40.5
108	2009/04/01 00:31:50	39.9
109	2009/04/01 00:31:51	40.0
110	2009/04/01 00:31:52	39.5
111	2009/04/01 00:31:53	39.6
112	2009/04/01 00:31:54	39.5
113	2009/04/01 00:31:55	39.6
114	2009/04/01 00:31:56	43.3
115	2009/04/01 00:31:57	39.2
116	2009/04/01 00:31:58	39.9
117	2009/04/01 00:31:59	39.1
118	2009/04/01 00:32:00	40.3
119	2009/04/01 00:32:01	39.8
120	2009/04/01 00:32:02	40.3
121	2009/04/01 00:32:03	40.6
122	2009/04/01 00:32:04	39.4
123	2009/04/01 00:32:05	39.4
124	2009/04/01 00:32:06	41.3
125	2009/04/01 00:32:07	41.8
126	2009/04/01 00:32:08	40.6
127	2009/04/01 00:32:09	39.2
128	2009/04/01 00:32:10	39.6
129	2009/04/01 00:32:11	38.8
130	2009/04/01 00:32:12	42.2
131	2009/04/01 00:32:13	41.3
132	2009/04/01 00:32:14	41.8
133	2009/04/01 00:32:15	41.6
134	2009/04/01 00:32:16	40.9
135	2009/04/01 00:32:17	40.4
136	2009/04/01 00:32:18	40.3
137	2009/04/01 00:32:19	39.5
138	2009/04/01 00:32:20	39.8
139	2009/04/01 00:32:21	40.3
140	2009/04/01 00:32:22	39.8
141	2009/04/01 00:32:23	40.3
142	2009/04/01 00:32:24	40.2
143	2009/04/01 00:32:25	39.9
144	2009/04/01 00:32:26	41.6
145	2009/04/01 00:32:27	40.7
146	2009/04/01 00:32:28	39.5
147	2009/04/01 00:32:29	41.0
148	2009/04/01 00:32:30	40.5
149	2009/04/01 00:32:31	41.0
150	2009/04/01 00:32:32	41.4
151	2009/04/01 00:32:33	41.2
152	2009/04/01 00:32:34	41.2
153	2009/04/01 00:32:35	42.1
154	2009/04/01 00:32:36	42.2
155	2009/04/01 00:32:37	40.9
156	2009/04/01 00:32:38	41.0
157	2009/04/01 00:32:39	41.9
158	2009/04/01 00:32:40	40.7
159	2009/04/01 00:32:41	42.0
160	2009/04/01 00:32:42	41.1
161	2009/04/01 00:32:43	46.0
162	2009/04/01 00:32:44	40.5
163	2009/04/01 00:32:45	41.3
164	2009/04/01 00:32:46	41.3
165	2009/04/01 00:32:47	41.8
166	2009/04/01 00:32:48	41.8
167	2009/04/01 00:32:49	41.8
168	2009/04/01 00:32:50	42.7
169	2009/04/01 00:32:51	42.4
170	2009/04/01 00:32:52	41.8
171	2009/04/01 00:32:53	43.5
172	2009/04/01 00:32:54	42.9
173	2009/04/01 00:32:55	42.3
174	2009/04/01 00:32:56	44.7
175	2009/04/01 00:32:57	41.2
176	2009/04/01 00:32:58	41.7
177	2009/04/01 00:32:59	40.2
178	2009/04/01 00:33:00	38.8
179	2009/04/01 00:33:01	45.1
180	2009/04/01 00:33:02	39.3
181	2009/04/01 00:33:03	39.3
182	2009/04/01 00:33:04	39.2
183	2009/04/01 00:33:05	39.9
184	2009/04/01 00:33:06	38.7

185	2009/04/01 00:33:07	39.0
186	2009/04/01 00:33:08	38.6
187	2009/04/01 00:33:09	38.5
188	2009/04/01 00:33:10	38.7
189	2009/04/01 00:33:11	40.4
190	2009/04/01 00:33:12	38.3
191	2009/04/01 00:33:13	39.0
192	2009/04/01 00:33:14	38.9
193	2009/04/01 00:33:15	39.3
194	2009/04/01 00:33:16	38.7
195	2009/04/01 00:33:17	39.3
196	2009/04/01 00:33:18	38.9
197	2009/04/01 00:33:19	39.2
198	2009/04/01 00:33:20	39.2
199	2009/04/01 00:33:21	39.3
200	2009/04/01 00:33:22	39.8
201	2009/04/01 00:33:23	39.3
202	2009/04/01 00:33:24	39.6
203	2009/04/01 00:33:25	40.3
204	2009/04/01 00:33:26	40.4
205	2009/04/01 00:33:27	40.3
206	2009/04/01 00:33:28	39.5
207	2009/04/01 00:33:29	38.8
208	2009/04/01 00:33:30	39.5
209	2009/04/01 00:33:31	39.6
210	2009/04/01 00:33:32	39.4
211	2009/04/01 00:33:33	38.7
212	2009/04/01 00:33:34	39.6
213	2009/04/01 00:33:35	39.8
214	2009/04/01 00:33:36	41.3
215	2009/04/01 00:33:37	41.7
216	2009/04/01 00:33:38	40.2
217	2009/04/01 00:33:39	41.4
218	2009/04/01 00:33:40	40.7
219	2009/04/01 00:33:41	39.5
220	2009/04/01 00:33:42	41.0
221	2009/04/01 00:33:43	40.5
222	2009/04/01 00:33:44	39.4
223	2009/04/01 00:33:45	39.2
224	2009/04/01 00:33:46	39.7
225	2009/04/01 00:33:47	40.8
226	2009/04/01 00:33:48	40.0
227	2009/04/01 00:33:49	44.0
228	2009/04/01 00:33:50	43.4
229	2009/04/01 00:33:51	43.9
230	2009/04/01 00:33:52	43.1
231	2009/04/01 00:33:53	44.9
232	2009/04/01 00:33:54	42.2
233	2009/04/01 00:33:55	41.2
234	2009/04/01 00:33:56	43.6
235	2009/04/01 00:33:57	42.2
236	2009/04/01 00:33:58	41.6
237	2009/04/01 00:33:59	41.3
238	2009/04/01 00:34:00	41.1
239	2009/04/01 00:34:01	40.7
240	2009/04/01 00:34:02	41.2
241	2009/04/01 00:34:03	41.3
242	2009/04/01 00:34:04	39.2
243	2009/04/01 00:34:05	40.1
244	2009/04/01 00:34:06	41.1
245	2009/04/01 00:34:07	41.8
246	2009/04/01 00:34:08	40.1
247	2009/04/01 00:34:09	39.5
248	2009/04/01 00:34:10	39.1
249	2009/04/01 00:34:11	41.7
250	2009/04/01 00:34:12	39.4
251	2009/04/01 00:34:13	39.7
252	2009/04/01 00:34:14	40.6
253	2009/04/01 00:34:15	39.0
254	2009/04/01 00:34:16	41.3
255	2009/04/01 00:34:17	41.0
256	2009/04/01 00:34:18	43.0
257	2009/04/01 00:34:19	44.3
258	2009/04/01 00:34:20	42.5
259	2009/04/01 00:34:21	43.5
260	2009/04/01 00:34:22	43.7
261	2009/04/01 00:34:23	42.9
262	2009/04/01 00:34:24	42.2
263	2009/04/01 00:34:25	41.0
264	2009/04/01 00:34:26	42.2
265	2009/04/01 00:34:27	42.7
266	2009/04/01 00:34:28	42.7
267	2009/04/01 00:34:29	41.5
268	2009/04/01 00:34:30	42.5
269	2009/04/01 00:34:31	43.0
270	2009/04/01 00:34:32	42.1
271	2009/04/01 00:34:33	42.3
272	2009/04/01 00:34:34	42.1
273	2009/04/01 00:34:35	40.7
274	2009/04/01 00:34:36	39.9
275	2009/04/01 00:34:37	41.2
276	2009/04/01 00:34:38	41.5
277	2009/04/01 00:34:39	39.9
278	2009/04/01 00:34:40	42.9
279	2009/04/01 00:34:41	40.8
280	2009/04/01 00:34:42	40.3
281	2009/04/01 00:34:43	41.7
282	2009/04/01 00:34:44	41.7
283	2009/04/01 00:34:45	43.8

284	2009/04/01 00:34:46	42.9
285	2009/04/01 00:34:47	44.2
286	2009/04/01 00:34:48	41.6
287	2009/04/01 00:34:49	41.9
288	2009/04/01 00:34:50	41.9
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727	2009/04/01 00:42:09	43.9
728	2009/04/01 00:42:10	42.8
729	2009/04/01 00:42:11	41.9
730	2009/04/01 00:42:12	41.9
731	2009/04/01 00:42:13	45.5
732	2009/04/01 00:42:14	42.6
733	2009/04/01 00:42:15	43.1
734	2009/04/01 00:42:16	42.8
735	2009/04/01 00:42:17	41.2
736	2009/04/01 00:42:18	40.4
737	2009/04/01 00:42:19	39.6
738	2009/04/01 00:42:20	40.2
739	2009/04/01 00:42:21	40.3
740	2009/04/01 00:42:22	39.7
741	2009/04/01 00:42:23	39.5
742	2009/04/01 00:42:24	40.9
743	2009/04/01 00:42:25	39.9
744	2009/04/01 00:42:26	41.1
745	2009/04/01 00:42:27	39.6
746	2009/04/01 00:42:28	39.6
747	2009/04/01 00:42:29	39.6
748	2009/04/01 00:42:30	38.7
749	2009/04/01 00:42:31	39.7
750	2009/04/01 00:42:32	40.9
751	2009/04/01 00:42:33	40.9
752	2009/04/01 00:42:34	43.4
753	2009/04/01 00:42:35	42.9
754	2009/04/01 00:42:36	41.1
755	2009/04/01 00:42:37	40.2
756	2009/04/01 00:42:38	40.3
757	2009/04/01 00:42:39	40.7
758	2009/04/01 00:42:40	40.0
759	2009/04/01 00:42:41	39.5
760	2009/04/01 00:42:42	39.9
761	2009/04/01 00:42:43	39.5
762	2009/04/01 00:42:44	39.8
763	2009/04/01 00:42:45	40.6
764	2009/04/01 00:42:46	40.7
765	2009/04/01 00:42:47	41.9
766	2009/04/01 00:42:48	41.4
767	2009/04/01 00:42:49	41.1
768	2009/04/01 00:42:50	39.7
769	2009/04/01 00:42:51	39.5
770	2009/04/01 00:42:52	38.6
771	2009/04/01 00:42:53	38.6
772	2009/04/01 00:42:54	39.0
773	2009/04/01 00:42:55	41.2
774	2009/04/01 00:42:56	37.9
775	2009/04/01 00:42:57	37.8
776	2009/04/01 00:42:58	37.6
777	2009/04/01 00:42:59	37.4
778	2009/04/01 00:43:00	38.3

779	2009/04/01	00:43:01	37.7
780	2009/04/01	00:43:02	37.9
781	2009/04/01	00:43:03	38.7
782	2009/04/01	00:43:04	37.7
783	2009/04/01	00:43:05	37.3
784	2009/04/01	00:43:06	37.9
785	2009/04/01	00:43:07	37.8
786	2009/04/01	00:43:08	41.1
787	2009/04/01	00:43:09	37.4
788	2009/04/01	00:43:10	38.3
789	2009/04/01	00:43:11	39.0
790	2009/04/01	00:43:12	39.4
791	2009/04/01	00:43:13	39.4
792	2009/04/01	00:43:14	39.2
793	2009/04/01	00:43:15	40.5
794	2009/04/01	00:43:16	41.0
795	2009/04/01	00:43:17	41.6
796	2009/04/01	00:43:18	41.1
797	2009/04/01	00:43:19	42.5
798	2009/04/01	00:43:20	42.5
799	2009/04/01	00:43:21	42.5
800	2009/04/01	00:43:22	42.1
801	2009/04/01	00:43:23	42.0
802	2009/04/01	00:43:24	41.7
803	2009/04/01	00:43:25	42.1
804	2009/04/01	00:43:26	42.9
805	2009/04/01	00:43:27	41.9
806	2009/04/01	00:43:28	41.9
807	2009/04/01	00:43:29	39.8
808	2009/04/01	00:43:30	40.5
809	2009/04/01	00:43:31	40.1
810	2009/04/01	00:43:32	40.4
811	2009/04/01	00:43:33	39.9
812	2009/04/01	00:43:34	40.9
813	2009/04/01	00:43:35	40.9
814	2009/04/01	00:43:36	40.5
815	2009/04/01	00:43:37	41.9
816	2009/04/01	00:43:38	41.5
817	2009/04/01	00:43:39	43.2
818	2009/04/01	00:43:40	42.3
819	2009/04/01	00:43:41	41.9
820	2009/04/01	00:43:42	41.7
821	2009/04/01	00:43:43	41.2
822	2009/04/01	00:43:44	42.4
823	2009/04/01	00:43:45	42.4
824	2009/04/01	00:43:46	44.0
825	2009/04/01	00:43:47	45.1
826	2009/04/01	00:43:48	43.9
827	2009/04/01	00:43:49	43.2
828	2009/04/01	00:43:50	42.2
829	2009/04/01	00:43:51	42.4
830	2009/04/01	00:43:52	41.9
831	2009/04/01	00:43:53	40.9
832	2009/04/01	00:43:54	41.4
833	2009/04/01	00:43:55	41.1
834	2009/04/01	00:43:56	40.8
835	2009/04/01	00:43:57	40.2
836	2009/04/01	00:43:58	39.1
837	2009/04/01	00:43:59	40.1
838	2009/04/01	00:44:00	41.0
839	2009/04/01	00:44:01	40.4
840	2009/04/01	00:44:02	39.7
841	2009/04/01	00:44:03	40.4
842	2009/04/01	00:44:04	40.3
843	2009/04/01	00:44:05	39.6
844	2009/04/01	00:44:06	39.8
845	2009/04/01	00:44:07	39.7
846	2009/04/01	00:44:08	39.7
847	2009/04/01	00:44:09	40.2
848	2009/04/01	00:44:10	40.2
849	2009/04/01	00:44:11	39.4
850	2009/04/01	00:44:12	39.7
851	2009/04/01	00:44:13	39.3
852	2009/04/01	00:44:14	41.0
853	2009/04/01	00:44:15	39.7
854	2009/04/01	00:44:16	40.5
855	2009/04/01	00:44:17	40.5
856	2009/04/01	00:44:18	40.5
857	2009/04/01	00:44:19	40.5
858	2009/04/01	00:44:20	41.3
859	2009/04/01	00:44:21	41.8
860	2009/04/01	00:44:22	46.7
861	2009/04/01	00:44:23	47.0
862	2009/04/01	00:44:24	43.3
863	2009/04/01	00:44:25	47.0
864	2009/04/01	00:44:26	45.1
865	2009/04/01	00:44:27	45.5
866	2009/04/01	00:44:28	46.1
867	2009/04/01	00:44:29	47.4
868	2009/04/01	00:44:30	49.7
869	2009/04/01	00:44:31	51.2
870	2009/04/01	00:44:32	43.5
871	2009/04/01	00:44:33	41.2
872	2009/04/01	00:44:34	41.4
873	2009/04/01	00:44:35	41.4
874	2009/04/01	00:44:36	41.7
875	2009/04/01	00:44:37	41.0
876	2009/04/01	00:44:38	41.7
877	2009/04/01	00:44:39	42.3

878	2009/04/01	00:44:40	41.3
879	2009/04/01	00:44:41	40.7
880	2009/04/01	00:44:42	41.6
881	2009/04/01	00:44:43	41.0
882	2009/04/01	00:44:44	40.1
883	2009/04/01	00:44:45	41.2
884	2009/04/01	00:44:46	40.5
885	2009/04/01	00:44:47	40.7
886	2009/04/01	00:44:48	41.7
887	2009/04/01	00:44:49	40.6
888	2009/04/01	00:44:50	40.5
889	2009/04/01	00:44:51	40.3
890	2009/04/01	00:44:52	40.8
891	2009/04/01	00:44:53	40.3
892	2009/04/01	00:44:54	41.0
893	2009/04/01	00:44:55	40.5
894	2009/04/01	00:44:56	40.1
895	2009/04/01	00:44:57	40.2
896	2009/04/01	00:44:58	40.0
897	2009/04/01	00:44:59	40.6
898	2009/04/01	00:45:00	40.9
899	2009/04/01	00:45:01	41.3
900	2009/04/01	00:45:02	39.9

Noise Measurement 4

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 72.4 - 2009/04/01 01:05:40
- Level Range : 40-100
- SEL : 77.6
- Leq : 48.1
-

No.s	Date Time	(dB)
1	2009/04/01 00:59:58	46.8
2	2009/04/01 00:59:59	51.1
3	2009/04/01 01:00:00	50.6
4	2009/04/01 01:00:01	47.5
5	2009/04/01 01:00:02	46.8
6	2009/04/01 01:00:03	47.1
7	2009/04/01 01:00:04	51.8
8	2009/04/01 01:00:05	49.3
9	2009/04/01 01:00:06	52.9
10	2009/04/01 01:00:07	52.8
11	2009/04/01 01:00:08	52.1
12	2009/04/01 01:00:09	50.8
13	2009/04/01 01:00:10	49.4
14	2009/04/01 01:00:11	48.6
15	2009/04/01 01:00:12	52.0
16	2009/04/01 01:00:13	54.0
17	2009/04/01 01:00:14	59.6
18	2009/04/01 01:00:15	50.9
19	2009/04/01 01:00:16	55.6
20	2009/04/01 01:00:17	56.4
21	2009/04/01 01:00:18	50.5
22	2009/04/01 01:00:19	55.5
23	2009/04/01 01:00:20	47.8
24	2009/04/01 01:00:21	52.5
25	2009/04/01 01:00:22	50.5
26	2009/04/01 01:00:23	46.3
27	2009/04/01 01:00:24	48.4
28	2009/04/01 01:00:25	47.3
29	2009/04/01 01:00:26	53.7
30	2009/04/01 01:00:27	49.9
31	2009/04/01 01:00:28	50.4
32	2009/04/01 01:00:29	51.7
33	2009/04/01 01:00:30	51.5
34	2009/04/01 01:00:31	51.3
35	2009/04/01 01:00:32	53.3
36	2009/04/01 01:00:33	55.0
37	2009/04/01 01:00:34	47.5
38	2009/04/01 01:00:35	49.3
39	2009/04/01 01:00:36	49.1
40	2009/04/01 01:00:37	55.5
41	2009/04/01 01:00:38	57.3
42	2009/04/01 01:00:39	56.4
43	2009/04/01 01:00:40	56.4
44	2009/04/01 01:00:41	54.1
45	2009/04/01 01:00:42	54.3
46	2009/04/01 01:00:43	48.8
47	2009/04/01 01:00:44	47.0
48	2009/04/01 01:00:45	50.0
49	2009/04/01 01:00:46	49.5
50	2009/04/01 01:00:47	50.4
51	2009/04/01 01:00:48	46.8
52	2009/04/01 01:00:49	47.7
53	2009/04/01 01:00:50	50.1
54	2009/04/01 01:00:51	45.0
55	2009/04/01 01:00:52	45.6
56	2009/04/01 01:00:53	46.8
57	2009/04/01 01:00:54	43.8
58	2009/04/01 01:00:55	42.8
59	2009/04/01 01:00:56	43.2
60	2009/04/01 01:00:57	46.9
61	2009/04/01 01:00:58	46.0
62	2009/04/01 01:00:59	44.5
63	2009/04/01 01:01:00	43.0
64	2009/04/01 01:01:01	43.5
65	2009/04/01 01:01:02	43.2
66	2009/04/01 01:01:03	42.2
67	2009/04/01 01:01:04	42.3
68	2009/04/01 01:01:05	42.2
69	2009/04/01 01:01:06	42.7
70	2009/04/01 01:01:07	44.0
71	2009/04/01 01:01:08	43.7
72	2009/04/01 01:01:09	44.1
73	2009/04/01 01:01:10	45.3
74	2009/04/01 01:01:11	51.1
75	2009/04/01 01:01:12	46.9
76	2009/04/01 01:01:13	46.9
77	2009/04/01 01:01:14	46.8
78	2009/04/01 01:01:15	48.6
79	2009/04/01 01:01:16	51.0
80	2009/04/01 01:01:17	48.7
81	2009/04/01 01:01:18	44.0
82	2009/04/01 01:01:19	44.2
83	2009/04/01 01:01:20	44.0
84	2009/04/01 01:01:21	44.9
85	2009/04/01 01:01:22	44.5

86	2009/04/01 01:01:23	44.8
87	2009/04/01 01:01:24	43.8
88	2009/04/01 01:01:25	43.4
89	2009/04/01 01:01:26	44.2
90	2009/04/01 01:01:27	43.4
91	2009/04/01 01:01:28	43.7
92	2009/04/01 01:01:29	44.2
93	2009/04/01 01:01:30	43.1
94	2009/04/01 01:01:31	42.4
95	2009/04/01 01:01:32	43.3
96	2009/04/01 01:01:33	43.6
97	2009/04/01 01:01:34	42.9
98	2009/04/01 01:01:35	44.0
99	2009/04/01 01:01:36	44.0
100	2009/04/01 01:01:37	44.7
101	2009/04/01 01:01:38	45.8
102	2009/04/01 01:01:39	43.0
103	2009/04/01 01:01:40	43.8
104	2009/04/01 01:01:41	43.7
105	2009/04/01 01:01:42	43.2
106	2009/04/01 01:01:43	43.3
107	2009/04/01 01:01:44	43.3
108	2009/04/01 01:01:45	43.8
109	2009/04/01 01:01:46	44.2
110	2009/04/01 01:01:47	43.5
111	2009/04/01 01:01:48	43.3
112	2009/04/01 01:01:49	43.1
113	2009/04/01 01:01:50	42.1
114	2009/04/01 01:01:51	42.8
115	2009/04/01 01:01:52	43.7
116	2009/04/01 01:01:53	43.6
117	2009/04/01 01:01:54	43.4
118	2009/04/01 01:01:55	42.8
119	2009/04/01 01:01:56	42.2
120	2009/04/01 01:01:57	43.4
121	2009/04/01 01:01:58	43.5
122	2009/04/01 01:01:59	44.4
123	2009/04/01 01:02:00	43.5
124	2009/04/01 01:02:01	46.2
125	2009/04/01 01:02:02	47.0
126	2009/04/01 01:02:03	47.7
127	2009/04/01 01:02:04	47.8
128	2009/04/01 01:02:05	45.8
129	2009/04/01 01:02:06	47.4
130	2009/04/01 01:02:07	47.8
131	2009/04/01 01:02:08	49.3
132	2009/04/01 01:02:09	47.1
133	2009/04/01 01:02:10	44.5
134	2009/04/01 01:02:11	45.2
135	2009/04/01 01:02:12	46.0
136	2009/04/01 01:02:13	46.5
137	2009/04/01 01:02:14	45.2
138	2009/04/01 01:02:15	46.8
139	2009/04/01 01:02:16	45.2
140	2009/04/01 01:02:17	46.6
141	2009/04/01 01:02:18	48.9
142	2009/04/01 01:02:19	48.0
143	2009/04/01 01:02:20	48.2
144	2009/04/01 01:02:21	48.1
145	2009/04/01 01:02:22	49.4
146	2009/04/01 01:02:23	51.8
147	2009/04/01 01:02:24	54.7
148	2009/04/01 01:02:25	54.1
149	2009/04/01 01:02:26	53.4
150	2009/04/01 01:02:27	53.5
151	2009/04/01 01:02:28	55.2
152	2009/04/01 01:02:29	53.8
153	2009/04/01 01:02:30	50.3
154	2009/04/01 01:02:31	49.9
155	2009/04/01 01:02:32	52.0
156	2009/04/01 01:02:33	50.2
157	2009/04/01 01:02:34	49.2
158	2009/04/01 01:02:35	49.4
159	2009/04/01 01:02:36	47.5
160	2009/04/01 01:02:37	47.0
161	2009/04/01 01:02:38	46.4
162	2009/04/01 01:02:39	44.0
163	2009/04/01 01:02:40	45.2
164	2009/04/01 01:02:41	44.2
165	2009/04/01 01:02:42	43.6
166	2009/04/01 01:02:43	42.7
167	2009/04/01 01:02:44	42.5
168	2009/04/01 01:02:45	42.5
169	2009/04/01 01:02:46	42.6
170	2009/04/01 01:02:47	42.7
171	2009/04/01 01:02:48	43.6
172	2009/04/01 01:02:49	44.4
173	2009/04/01 01:02:50	45.1
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182	2009/04/01 01:02:59	45.8
183	2009/04/01 01:03:00	43.7
184	2009/04/01 01:03:01	43.3

185	2009/04/01	01:03:02	41.7
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187	2009/04/01	01:03:04	42.5
188	2009/04/01	01:03:05	43.8
189	2009/04/01	01:03:06	43.2
190	2009/04/01	01:03:07	42.1
191	2009/04/01	01:03:08	42.5
192	2009/04/01	01:03:09	42.7
193	2009/04/01	01:03:10	42.0
194	2009/04/01	01:03:11	42.4
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196	2009/04/01	01:03:13	41.8
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203	2009/04/01	01:03:20	41.9
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209	2009/04/01	01:03:26	43.4
210	2009/04/01	01:03:27	44.3
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217	2009/04/01	01:03:34	43.4
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219	2009/04/01	01:03:36	44.5
220	2009/04/01	01:03:37	47.4
221	2009/04/01	01:03:38	46.5
222	2009/04/01	01:03:39	47.8
223	2009/04/01	01:03:40	52.2
224	2009/04/01	01:03:41	49.7
225	2009/04/01	01:03:42	44.1
226	2009/04/01	01:03:43	44.1
227	2009/04/01	01:03:44	51.4
228	2009/04/01	01:03:45	43.6
229	2009/04/01	01:03:46	50.0
230	2009/04/01	01:03:47	49.2
231	2009/04/01	01:03:48	49.0
232	2009/04/01	01:03:49	47.1
233	2009/04/01	01:03:50	46.3
234	2009/04/01	01:03:51	43.9
235	2009/04/01	01:03:52	48.3
236	2009/04/01	01:03:53	41.3
237	2009/04/01	01:03:54	48.7
238	2009/04/01	01:03:55	40.7
239	2009/04/01	01:03:56	43.5
240	2009/04/01	01:03:57	42.2
241	2009/04/01	01:03:58	41.3
242	2009/04/01	01:03:59	44.3
243	2009/04/01	01:04:00	42.9
244	2009/04/01	01:04:01	43.8
245	2009/04/01	01:04:02	41.1
246	2009/04/01	01:04:03	40.8
247	2009/04/01	01:04:04	40.9
248	2009/04/01	01:04:05	42.5
249	2009/04/01	01:04:06	41.4
250	2009/04/01	01:04:07	40.5
251	2009/04/01	01:04:08	41.0
252	2009/04/01	01:04:09	40.4
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258	2009/04/01	01:04:15	41.4
259	2009/04/01	01:04:16	41.8
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269	2009/04/01	01:04:26	39.5
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694	2009/04/01 01:11:31	40.6
695	2009/04/01 01:11:32	40.7
696	2009/04/01 01:11:33	39.5
697	2009/04/01 01:11:34	42.5
698	2009/04/01 01:11:35	38.0
699	2009/04/01 01:11:36	41.0
700	2009/04/01 01:11:37	45.3
701	2009/04/01 01:11:38	39.4
702	2009/04/01 01:11:39	39.2
703	2009/04/01 01:11:40	38.2
704	2009/04/01 01:11:41	37.3
705	2009/04/01 01:11:42	37.7
706	2009/04/01 01:11:43	37.7
707	2009/04/01 01:11:44	37.7
708	2009/04/01 01:11:45	38.2
709	2009/04/01 01:11:46	38.5
710	2009/04/01 01:11:47	37.9
711	2009/04/01 01:11:48	39.0
712	2009/04/01 01:11:49	38.4
713	2009/04/01 01:11:50	39.3
714	2009/04/01 01:11:51	38.6
715	2009/04/01 01:11:52	41.1
716	2009/04/01 01:11:53	38.9
717	2009/04/01 01:11:54	38.6
718	2009/04/01 01:11:55	40.9
719	2009/04/01 01:11:56	39.0
720	2009/04/01 01:11:57	42.3
721	2009/04/01 01:11:58	40.8
722	2009/04/01 01:11:59	46.8
723	2009/04/01 01:12:00	39.3
724	2009/04/01 01:12:01	39.3
725	2009/04/01 01:12:02	37.9
726	2009/04/01 01:12:03	37.7
727	2009/04/01 01:12:04	37.5
728	2009/04/01 01:12:05	38.3
729	2009/04/01 01:12:06	37.1
730	2009/04/01 01:12:07	37.4
731	2009/04/01 01:12:08	37.8
732	2009/04/01 01:12:09	39.6
733	2009/04/01 01:12:10	38.9
734	2009/04/01 01:12:11	38.6
735	2009/04/01 01:12:12	38.7
736	2009/04/01 01:12:13	38.0
737	2009/04/01 01:12:14	38.0
738	2009/04/01 01:12:15	39.0
739	2009/04/01 01:12:16	38.7
740	2009/04/01 01:12:17	39.6
741	2009/04/01 01:12:18	38.4
742	2009/04/01 01:12:19	39.0
743	2009/04/01 01:12:20	38.7
744	2009/04/01 01:12:21	39.7
745	2009/04/01 01:12:22	40.0
746	2009/04/01 01:12:23	39.6
747	2009/04/01 01:12:24	39.9
748	2009/04/01 01:12:25	39.6
749	2009/04/01 01:12:26	39.4
750	2009/04/01 01:12:27	38.6
751	2009/04/01 01:12:28	38.9
752	2009/04/01 01:12:29	38.0
753	2009/04/01 01:12:30	39.7
754	2009/04/01 01:12:31	38.4
755	2009/04/01 01:12:32	38.5
756	2009/04/01 01:12:33	39.5
757	2009/04/01 01:12:34	39.6
758	2009/04/01 01:12:35	41.5
759	2009/04/01 01:12:36	45.0
760	2009/04/01 01:12:37	46.4
761	2009/04/01 01:12:38	43.8
762	2009/04/01 01:12:39	44.3
763	2009/04/01 01:12:40	42.7
764	2009/04/01 01:12:41	40.9
765	2009/04/01 01:12:42	43.5
766	2009/04/01 01:12:43	41.3
767	2009/04/01 01:12:44	39.9
768	2009/04/01 01:12:45	41.2
769	2009/04/01 01:12:46	41.2
770	2009/04/01 01:12:47	41.4
771	2009/04/01 01:12:48	43.2
772	2009/04/01 01:12:49	41.7
773	2009/04/01 01:12:50	44.0
774	2009/04/01 01:12:51	41.2
775	2009/04/01 01:12:52	42.9
776	2009/04/01 01:12:53	41.3
777	2009/04/01 01:12:54	42.4
778	2009/04/01 01:12:55	41.7

779	2009/04/01 01:12:56	40.5
780	2009/04/01 01:12:57	43.5
781	2009/04/01 01:12:58	44.0
782	2009/04/01 01:12:59	41.8
783	2009/04/01 01:13:00	43.7
784	2009/04/01 01:13:01	43.4
785	2009/04/01 01:13:02	42.2
786	2009/04/01 01:13:03	43.4
787	2009/04/01 01:13:04	41.0
788	2009/04/01 01:13:05	41.4
789	2009/04/01 01:13:06	40.0
790	2009/04/01 01:13:07	44.0
791	2009/04/01 01:13:08	43.5
792	2009/04/01 01:13:09	42.4
793	2009/04/01 01:13:10	41.9
794	2009/04/01 01:13:11	43.9
795	2009/04/01 01:13:12	43.4
796	2009/04/01 01:13:13	42.5
797	2009/04/01 01:13:14	40.9
798	2009/04/01 01:13:15	41.2
799	2009/04/01 01:13:16	39.7
800	2009/04/01 01:13:17	39.6
801	2009/04/01 01:13:18	40.5
802	2009/04/01 01:13:19	41.2
803	2009/04/01 01:13:20	39.5
804	2009/04/01 01:13:21	42.2
805	2009/04/01 01:13:22	41.3
806	2009/04/01 01:13:23	41.6
807	2009/04/01 01:13:24	42.1
808	2009/04/01 01:13:25	38.9
809	2009/04/01 01:13:26	39.0
810	2009/04/01 01:13:27	38.8
811	2009/04/01 01:13:28	37.9
812	2009/04/01 01:13:29	38.7
813	2009/04/01 01:13:30	38.7
814	2009/04/01 01:13:31	39.1
815	2009/04/01 01:13:32	39.0
816	2009/04/01 01:13:33	38.3
817	2009/04/01 01:13:34	40.2
818	2009/04/01 01:13:35	41.1
819	2009/04/01 01:13:36	39.1
820	2009/04/01 01:13:37	41.3
821	2009/04/01 01:13:38	44.1
822	2009/04/01 01:13:39	41.1
823	2009/04/01 01:13:40	39.9
824	2009/04/01 01:13:41	42.0
825	2009/04/01 01:13:42	39.4
826	2009/04/01 01:13:43	39.4
827	2009/04/01 01:13:44	40.1
828	2009/04/01 01:13:45	41.3
829	2009/04/01 01:13:46	40.6
830	2009/04/01 01:13:47	42.7
831	2009/04/01 01:13:48	41.2
832	2009/04/01 01:13:49	41.2
833	2009/04/01 01:13:50	42.3
834	2009/04/01 01:13:51	42.9
835	2009/04/01 01:13:52	40.9
836	2009/04/01 01:13:53	42.1
837	2009/04/01 01:13:54	41.1
838	2009/04/01 01:13:55	42.0
839	2009/04/01 01:13:56	41.1
840	2009/04/01 01:13:57	41.5
841	2009/04/01 01:13:58	41.2
842	2009/04/01 01:13:59	40.0
843	2009/04/01 01:14:00	39.8
844	2009/04/01 01:14:01	41.1
845	2009/04/01 01:14:02	39.9
846	2009/04/01 01:14:03	40.1
847	2009/04/01 01:14:04	40.1
848	2009/04/01 01:14:05	39.8
849	2009/04/01 01:14:06	39.8
850	2009/04/01 01:14:07	39.8
851	2009/04/01 01:14:08	39.8
852	2009/04/01 01:14:09	39.8
853	2009/04/01 01:14:10	39.8
854	2009/04/01 01:14:11	39.8
855	2009/04/01 01:14:12	38.8
856	2009/04/01 01:14:13	40.9
857	2009/04/01 01:14:14	41.6
858	2009/04/01 01:14:15	46.9
859	2009/04/01 01:14:16	47.6
860	2009/04/01 01:14:17	46.0
861	2009/04/01 01:14:18	45.7
862	2009/04/01 01:14:19	43.8
863	2009/04/01 01:14:20	44.0
864	2009/04/01 01:14:21	43.7
865	2009/04/01 01:14:22	44.2
866	2009/04/01 01:14:23	45.1
867	2009/04/01 01:14:24	44.2
868	2009/04/01 01:14:25	44.1
869	2009/04/01 01:14:26	48.1
870	2009/04/01 01:14:27	46.4
871	2009/04/01 01:14:28	47.0
872	2009/04/01 01:14:29	47.2
873	2009/04/01 01:14:30	46.7
874	2009/04/01 01:14:31	52.2
875	2009/04/01 01:14:32	48.3
876	2009/04/01 01:14:33	54.1
877	2009/04/01 01:14:34	53.5

878	2009/04/01 01:14:35	50.7
879	2009/04/01 01:14:36	50.7
880	2009/04/01 01:14:37	53.3
881	2009/04/01 01:14:38	51.6
882	2009/04/01 01:14:39	52.8
883	2009/04/01 01:14:40	54.4
884	2009/04/01 01:14:41	50.8
885	2009/04/01 01:14:42	55.9
886	2009/04/01 01:14:43	56.4
887	2009/04/01 01:14:44	57.2
888	2009/04/01 01:14:45	54.9
889	2009/04/01 01:14:46	55.2
890	2009/04/01 01:14:47	60.8
891	2009/04/01 01:14:48	60.0
892	2009/04/01 01:14:49	65.8
893	2009/04/01 01:14:50	65.7
894	2009/04/01 01:14:51	66.0
895	2009/04/01 01:14:52	61.7
896	2009/04/01 01:14:53	63.0
897	2009/04/01 01:14:54	58.6
898	2009/04/01 01:14:55	60.0
899	2009/04/01 01:14:56	57.5
900	2009/04/01 01:14:57	56.3

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Ambient Noise Survey Data Sheet

Instructions: Document noise measurement locations with a photo of the site, including the noise meter. Additionally, take notes on general and secondary noise sources, including the instantaneous noise level if possible. As a reminder, A/C weighting should be set to "A" and generally response time should be set to "fast." For additional information, please review the *Noise Measurement Protocol* in the pelican case.

Project Name: Key Site 21 **Job Number:** 18-05780
Date: 12/19/18 **Operator Name:** Jourdan Riedy

Measurement #1

Location: 1 **Begin time:** 7:00 AM **Finish time:** 7:15 AM
Measurement No.: 1 **Wind (mph):** 0 **Direction:**
Cloud Cover Class: Overcast (>80%) ○ Light (20-80%) ○ Sunny (<20%) ☒
Calibration (dB): Start: 94.1 End: 94.1
Primary Noise Sources: roadway **Distance:**
Secondary Noise Sources:
Notes: bulldozer; helicopter

Traffic Count: Passenger Cars: 96
Medium to Heavy Duty Trucks (3 axles): 11 Heavy Duty Trucks (4+ axles): 111
Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):
Leq: 74.7 **SEL:** 104.2 **Lmax:** **Lmin:** **PK:**
L(05): **L(10):** **L(50):** **L(90):** **L(95):**
Response: Slow ○ Fast ☒ Peak ○ Impulse ○

Measurement #2

Location: 2 **Begin time:** 7:50 AM **Finish time:** 8:05 AM
Measurement No.: 2 **Wind (mph):** 0 **Direction:**
Cloud Cover Class: Overcast (>80%) ○ Light (20-80%) ○ Sunny (<20%) ☒
Calibration (dB): Start: 94.1 End: 94.1
Primary Noise Sources: roadway **Distance:**
Secondary Noise Sources:
Notes: helicopter

Traffic Count: Passenger Cars: 86
Medium to Heavy Duty Trucks (3 axles): 11 Heavy Duty Trucks (4+ axles): 11
Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):
Leq: 74.7 **SEL:** 104.2 **Lmax:** **Lmin:** **PK:**
L(05): **L(10):** **L(50):** **L(90):** **L(95):**
Response: Slow ○ Fast ☒ Peak ○ Impulse ○

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Ambient Noise Survey Data Sheet

Instructions: Document noise measurement locations with a photo of the site, including the noise meter. Additionally, take notes on general and secondary noise sources, including the instantaneous noise level if possible. As a reminder, A/C weighting should be set to "A" and generally response time should be set to "fast." For additional information, please review the *Noise Measurement Protocol* in the pelican case.

Project Name: Key Site 21 **Job Number:** 18-05780

Date: 12/19/18 **Operator Name:** Jourdan Riedy

Measurement #1

Location: 3 **Begin time:** 8:33 AM **Finish time:** 8:48 AM

Measurement No.: 3 **Wind (mph):** Ø **Direction:**

Cloud Cover Class: Overcast (>80%) ○ Light (20-80%) ○ Sunny (<20%) ☒

Calibration (dB): Start: 94.1 End: 94.1

Primary Noise Sources: roadway **Distance:**

Secondary Noise Sources: leaf blower, helicopter

Notes:

Traffic Count: Passenger Cars:

Medium to Heavy Duty Trucks (3 axles): Heavy Duty Trucks (4+ axles):

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):

Leq: 41.4 **SEL:** 70.9 **Lmax:** **Lmin:** **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow ○ Fast ☒ Peak ○ Impulse ○

Measurement #2

Location: 4 **Begin time:** 9:03 AM **Finish time:** 9:18 AM

Measurement No.: 4 **Wind (mph):** Ø **Direction:**

Cloud Cover Class: Overcast (>80%) ○ Light (20-80%) ○ Sunny (<20%) ☒

Calibration (dB): Start: 94.1 End: 94.1

Primary Noise Sources: roadway **Distance:**

Secondary Noise Sources: leaf blower

Notes: golfers walking

Traffic Count: Passenger Cars:

Medium to Heavy Duty Trucks (3 axles): Heavy Duty Trucks (4+ axles):

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):

Leq: 48.1 **SEL:** 77.6 **Lmax:** **Lmin:** **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow ○ Fast ☒ Peak ○ Impulse ○

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Hidden Canyon Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Front End Loader	No	40		79.1	1300.0	0.0
Front End Loader	No	40		79.1	1300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Backhoe 49.3 45.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 49.3 45.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 49.3 45.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 55.7 51.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 55.7 51.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 55.7 51.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 55.7 60.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Backhoe	No	40		77.6	1750.0	0.0
Backhoe	No	40		77.6	1750.0	0.0
Backhoe	No	40		77.6	1750.0	0.0
Tractor	No	40	84.0		1750.0	0.0
Tractor	No	40	84.0		1750.0	0.0
Tractor	No	40	84.0		1750.0	0.0
Front End Loader	No	40		79.1	1750.0	0.0
Front End Loader	No	40		79.1	1750.0	0.0

Results

Calculated (dBA)	Noise Limits (dBA) Day	Evening	Night	Noise Limit Exceedance (dBA) Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	46.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	46.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	46.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	48.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	48.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
RMGC Clubhouse	Commercial	44.8	55.0	45.0

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact	Usage	Lmax	Lmax	Distance	Shielding
Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Backhoe	No	40		77.6	1200.0	0.0

Backhoe	No	40	77.6	1200.0	0.0
Backhoe	No	40	77.6	1200.0	0.0
Tractor	No	40	84.0	1200.0	0.0
Tractor	No	40	84.0	1200.0	0.0
Tractor	No	40	84.0	1200.0	0.0
Front End Loader	No	40	79.1	1200.0	0.0
Front End Loader	No	40	79.1	1200.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Hidden Canyon Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1300.0	0.0
Grader	No	40	85.0		1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Dozer	No	40		81.7	1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Front End Loader	No	40		79.1	1300.0	0.0
Scraper	No	40		83.6	1300.0	0.0
Scraper	No	40		83.6	1300.0	0.0
Scraper	No	40		83.6	1300.0	0.0
Scraper	No	40		83.6	1300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	56.7	52.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	56.7	52.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	49.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Front End Loader 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 55.3 51.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 55.3 51.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 55.3 51.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 55.3 51.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 56.7 61.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1750.0	0.0
Grader	No	40	85.0		1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Dozer	No	40		81.7	1750.0	0.0
Tractor	No	40	84.0		1750.0	0.0
Tractor	No	40	84.0		1750.0	0.0
Backhoe	No	40		77.6	1750.0	0.0
Front End Loader	No	40		79.1	1750.0	0.0
Scraper	No	40		83.6	1750.0	0.0
Scraper	No	40		83.6	1750.0	0.0
Scraper	No	40		83.6	1750.0	0.0
Scraper	No	40		83.6	1750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	50.8	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Dozer 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 53.1 49.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 53.1 49.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 46.7 42.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 48.2 44.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 52.7 48.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 52.7 48.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 52.7 48.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 52.7 48.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 54.1 59.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #3 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
RMGC Clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1200.0	0.0
Grader	No	40	85.0		1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Dozer	No	40		81.7	1200.0	0.0
Tractor	No	40	84.0		1200.0	0.0
Tractor	No	40	84.0		1200.0	0.0
Backhoe	No	40		77.6	1200.0	0.0
Front End Loader	No	40		79.1	1200.0	0.0
Scraper	No	40		83.6	1200.0	0.0
Scraper	No	40		83.6	1200.0	0.0
Scraper	No	40		83.6	1200.0	0.0
Scraper	No	40		83.6	1200.0	0.0

Results

	Noise Limits (dBA)			Noise Limit Exceedance (dBA)		
Calculated (dBA)	Day	Evening	Night	Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	57.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	57.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Hidden Canyon Construction

**** Receptor #1 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1300.0	0.0
Crane	No	16		80.6	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Man Lift	No	20		74.7	1300.0	0.0
Generator	No	50		80.6	1300.0	0.0
Generator	No	50		80.6	1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Tractor	No	40	84.0		1300.0	0.0
Front End Loader	No	40		79.1	1300.0	0.0
Front End Loader	No	40		79.1	1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Backhoe	No	40		77.6	1300.0	0.0
Welder / Torch	No	40		74.0	1300.0	0.0
Welder / Torch	No	40		74.0	1300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	52.3	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	52.3	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	46.4	39.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	46.4	39.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Man Lift 46.4 39.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 46.4 39.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 46.4 39.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 46.4 39.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Generator 52.3 49.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Generator 52.3 49.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 55.7 51.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 55.7 51.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 50.8 46.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 49.3 45.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 49.3 45.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Welder / Torch 45.7 41.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Welder / Torch 45.7 41.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 55.7 58.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Description	Equipment Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1750.0	0.0
Crane	No	16		80.6	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Man Lift	No	20		74.7	1750.0	0.0
Generator	No	50		80.6	1750.0	0.0

Generator	No	50	80.6	1750.0	0.0
Tractor	No	40	84.0	1750.0	0.0
Tractor	No	40	84.0	1750.0	0.0
Front End Loader	No	40	79.1	1750.0	0.0
Front End Loader	No	40	79.1	1750.0	0.0
Backhoe	No	40	77.6	1750.0	0.0
Backhoe	No	40	77.6	1750.0	0.0
Welder / Torch	No	40	74.0	1750.0	0.0
Welder / Torch	No	40	74.0	1750.0	0.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	49.7	41.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	49.7	41.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	43.8	36.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	49.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	49.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	48.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	48.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	46.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	46.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	43.1	39.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	43.1	39.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Total 53.1 56.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
RMGC Clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1200.0	0.0
Crane	No	16		80.6	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Man Lift	No	20		74.7	1200.0	0.0
Generator	No	50		80.6	1200.0	0.0
Generator	No	50		80.6	1200.0	0.0
Tractor	No	40	84.0		1200.0	0.0
Tractor	No	40	84.0		1200.0	0.0
Front End Loader	No	40		79.1	1200.0	0.0
Front End Loader	No	40		79.1	1200.0	0.0
Backhoe	No	40		77.6	1200.0	0.0
Backhoe	No	40		77.6	1200.0	0.0
Welder / Torch	No	40		74.0	1200.0	0.0
Welder / Torch	No	40		74.0	1200.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	52.9	45.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	52.9	45.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	47.1	40.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	53.0	50.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	53.0	50.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.0	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	46.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	46.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.4	59.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Hidden Canyon Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1300.0	0.0
Paver	No	50		77.2	1300.0	0.0
Paver	No	50		77.2	1300.0	0.0
Paver	No	50		77.2	1300.0	0.0
Pavement Scarafier	No	20		89.5	1300.0	0.0
Pavement Scarafier	No	20		89.5	1300.0	0.0
Pavement Scarafier	No	20		89.5	1300.0	0.0
Pavement Scarafier	No	20		89.5	1300.0	0.0
Roller	No	20		80.0	1300.0	0.0
Roller	No	20		80.0	1300.0	0.0
Roller	No	20		80.0	1300.0	0.0
Roller	No	20		80.0	1300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	48.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Pavement Scarafier 61.2 54.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 51.7 44.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 51.7 44.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 51.7 44.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 51.7 44.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 61.2 61.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1750.0	0.0
Paver	No	50		77.2	1750.0	0.0
Paver	No	50		77.2	1750.0	0.0
Paver	No	50		77.2	1750.0	0.0
Pavement Scarafier	No	20		89.5	1750.0	0.0
Pavement Scarafier	No	20		89.5	1750.0	0.0
Pavement Scarafier	No	20		89.5	1750.0	0.0
Pavement Scarafier	No	20		89.5	1750.0	0.0
Roller	No	20		80.0	1750.0	0.0
Roller	No	20		80.0	1750.0	0.0
Roller	No	20		80.0	1750.0	0.0
Roller	No	20		80.0	1750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	46.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	46.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	46.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A														
Paver	46.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	58.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	58.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	58.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	58.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	49.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	49.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	49.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	49.1	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.6	58.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
RMGC Clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1200.0	0.0
Paver	No	50		77.2	1200.0	0.0
Paver	No	50		77.2	1200.0	0.0
Paver	No	50		77.2	1200.0	0.0
Pavement Scarafier	No	20		89.5	1200.0	0.0
Pavement Scarafier	No	20		89.5	1200.0	0.0
Pavement Scarafier	No	20		89.5	1200.0	0.0
Pavement Scarafier	No	20		89.5	1200.0	0.0
Roller	No	20		80.0	1200.0	0.0
Roller	No	20		80.0	1200.0	0.0
Roller	No	20		80.0	1200.0	0.0
Roller	No	20		80.0	1200.0	0.0

Results

Calculated (dBA)	Noise Limits (dBA) Day	Evening	Night	Noise Limit Exceedance (dBA) Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	61.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Hidden Canyon Architectural Coating

**** Receptor #1 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1300.0	0.0
Compressor (air)	No	40		77.7	1300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	49.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	49.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1750.0	0.0
Compressor (air)	No	40		77.7	1750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	46.8	42.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	46.8	42.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	46.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
RMGC Clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1200.0	0.0
Compressor (air)	No	40		77.7	1200.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	50.1	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	50.1	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	50.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Willow Creek Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Front End Loader	No	40		79.1	2700.0	0.0
Front End Loader	No	40		79.1	2700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Backhoe 42.9 38.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 42.9 38.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 42.9 38.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 49.4 45.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 49.4 45.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 49.4 45.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 44.5 40.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 44.5 40.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 49.4 54.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Backhoe	No	40		77.6	2850.0	0.0
Backhoe	No	40		77.6	2850.0	0.0
Backhoe	No	40		77.6	2850.0	0.0
Tractor	No	40	84.0		2850.0	0.0
Tractor	No	40	84.0		2850.0	0.0
Tractor	No	40	84.0		2850.0	0.0
Front End Loader	No	40		79.1	2850.0	0.0
Front End Loader	No	40		79.1	2850.0	0.0

Results

Calculated (dBA)	Noise Limits (dBA) Day	Evening	Night	Noise Limit Exceedance (dBA) Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	44.0	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	44.0	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	48.9	53.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
RMGC clubhouse	Commercial	44.8	55.0	45.0

		Equipment				
		Spec	Actual	Receptor	Estimated	
	Impact	Usage	Lmax	Lmax	Distance	Shielding
Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Backhoe	No	40		77.6	800.0	0.0

Backhoe	No	40	77.6	800.0	0.0
Backhoe	No	40	77.6	800.0	0.0
Tractor	No	40	84.0	800.0	0.0
Tractor	No	40	84.0	800.0	0.0
Tractor	No	40	84.0	800.0	0.0
Front End Loader	No	40	79.1	800.0	0.0
Front End Loader	No	40	79.1	800.0	0.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.9	64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Willow Creek Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		2700.0	0.0
Grader	No	40	85.0		2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Dozer	No	40		81.7	2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Front End Loader	No	40		79.1	2700.0	0.0
Scraper	No	40		83.6	2700.0	0.0
Scraper	No	40		83.6	2700.0	0.0
Scraper	No	40		83.6	2700.0	0.0
Scraper	No	40		83.6	2700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	50.4	46.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	50.4	46.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	47.0	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	49.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	49.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.9	38.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Front End Loader 44.5 40.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 48.9 45.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 48.9 45.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 48.9 45.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 48.9 45.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 50.4 55.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		2850.0	0.0
Grader	No	40	85.0		2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Dozer	No	40		81.7	2850.0	0.0
Tractor	No	40	84.0		2850.0	0.0
Tractor	No	40	84.0		2850.0	0.0
Backhoe	No	40		77.6	2850.0	0.0
Front End Loader	No	40		79.1	2850.0	0.0
Scraper	No	40		83.6	2850.0	0.0
Scraper	No	40		83.6	2850.0	0.0
Scraper	No	40		83.6	2850.0	0.0
Scraper	No	40		83.6	2850.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	49.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	49.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Dozer	46.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	44.0	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	48.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	48.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	48.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	48.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.9	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
RMGC clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		800.0	0.0
Grader	No	40	85.0		800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Dozer	No	40		81.7	800.0	0.0
Tractor	No	40	84.0		800.0	0.0
Tractor	No	40	84.0		800.0	0.0
Backhoe	No	40		77.6	800.0	0.0
Front End Loader	No	40		79.1	800.0	0.0
Scraper	No	40		83.6	800.0	0.0
Scraper	No	40		83.6	800.0	0.0
Scraper	No	40		83.6	800.0	0.0
Scraper	No	40		83.6	800.0	0.0

Results

	Noise Limits (dBA)			Noise Limit Exceedance (dBA)		
Calculated (dBA)	Day	Evening	Night	Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	60.9	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	60.9	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.9	65.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Willow Creek Building Construction

**** Receptor #1 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2700.0	0.0
Crane	No	16		80.6	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Man Lift	No	20		74.7	2700.0	0.0
Generator	No	50		80.6	2700.0	0.0
Generator	No	50		80.6	2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Tractor	No	40	84.0		2700.0	0.0
Front End Loader	No	40		79.1	2700.0	0.0
Front End Loader	No	40		79.1	2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Backhoe	No	40		77.6	2700.0	0.0
Welder / Torch	No	40		74.0	2700.0	0.0
Welder / Torch	No	40		74.0	2700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	45.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	45.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	40.1	33.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	40.1	33.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Man Lift 40.1 33.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 40.1 33.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 40.1 33.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Man Lift 40.1 33.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Generator 46.0 43.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Generator 46.0 43.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 49.4 45.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Tractor 49.4 45.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 44.5 40.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Front End Loader 44.5 40.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 42.9 38.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Backhoe 42.9 38.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Welder / Torch 39.4 35.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Welder / Torch 39.4 35.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 49.4 52.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2850.0	0.0
Crane	No	16		80.6	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Man Lift	No	20		74.7	2850.0	0.0
Generator	No	50		80.6	2850.0	0.0

Generator	No	50	80.6	2850.0	0.0
Tractor	No	40	84.0	2850.0	0.0
Tractor	No	40	84.0	2850.0	0.0
Front End Loader	No	40	79.1	2850.0	0.0
Front End Loader	No	40	79.1	2850.0	0.0
Backhoe	No	40	77.6	2850.0	0.0
Backhoe	No	40	77.6	2850.0	0.0
Welder / Torch	No	40	74.0	2850.0	0.0
Welder / Torch	No	40	74.0	2850.0	0.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	45.4	37.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	45.4	37.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.5	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.5	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.9	44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	44.0	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	44.0	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	42.4	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.9	34.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.9	34.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Total 48.9 52.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
RMGC clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	800.0	0.0
Crane	No	16		80.6	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Man Lift	No	20		74.7	800.0	0.0
Generator	No	50		80.6	800.0	0.0
Generator	No	50		80.6	800.0	0.0
Tractor	No	40	84.0		800.0	0.0
Tractor	No	40	84.0		800.0	0.0
Front End Loader	No	40		79.1	800.0	0.0
Front End Loader	No	40		79.1	800.0	0.0
Backhoe	No	40		77.6	800.0	0.0
Backhoe	No	40		77.6	800.0	0.0
Welder / Torch	No	40		74.0	800.0	0.0
Welder / Torch	No	40		74.0	800.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	56.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	56.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	50.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	56.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	56.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	49.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	49.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.9	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Willow Creek Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2700.0	0.0
Paver	No	50		77.2	2700.0	0.0
Paver	No	50		77.2	2700.0	0.0
Paver	No	50		77.2	2700.0	0.0
Pavement Scarafier	No	20		89.5	2700.0	0.0
Pavement Scarafier	No	20		89.5	2700.0	0.0
Pavement Scarafier	No	20		89.5	2700.0	0.0
Pavement Scarafier	No	20		89.5	2700.0	0.0
Roller	No	20		80.0	2700.0	0.0
Roller	No	20		80.0	2700.0	0.0
Roller	No	20		80.0	2700.0	0.0
Roller	No	20		80.0	2700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	42.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	54.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	54.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	54.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Pavement Scarafier 54.9 47.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 45.4 38.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 45.4 38.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 45.4 38.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 45.4 38.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 54.9 54.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #2 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2850.0	0.0
Paver	No	50		77.2	2850.0	0.0
Paver	No	50		77.2	2850.0	0.0
Paver	No	50		77.2	2850.0	0.0
Pavement Scarafier	No	20		89.5	2850.0	0.0
Pavement Scarafier	No	20		89.5	2850.0	0.0
Pavement Scarafier	No	20		89.5	2850.0	0.0
Pavement Scarafier	No	20		89.5	2850.0	0.0
Roller	No	20		80.0	2850.0	0.0
Roller	No	20		80.0	2850.0	0.0
Roller	No	20		80.0	2850.0	0.0
Roller	No	20		80.0	2850.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	42.1	39.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42.1	39.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42.1	39.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Paver 42.1 39.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Pavement Scarafier 54.4 47.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Pavement Scarafier 54.4 47.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Pavement Scarafier 54.4 47.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Pavement Scarafier 54.4 47.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 44.9 37.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 44.9 37.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 44.9 37.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Roller 44.9 37.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 54.4 54.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

**** Receptor #3 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
RMGC clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	800.0	0.0
Paver	No	50		77.2	800.0	0.0
Paver	No	50		77.2	800.0	0.0
Paver	No	50		77.2	800.0	0.0
Pavement Scarafier	No	20		89.5	800.0	0.0
Pavement Scarafier	No	20		89.5	800.0	0.0
Pavement Scarafier	No	20		89.5	800.0	0.0
Pavement Scarafier	No	20		89.5	800.0	0.0
Roller	No	20		80.0	800.0	0.0
Roller	No	20		80.0	800.0	0.0
Roller	No	20		80.0	800.0	0.0
Roller	No	20		80.0	800.0	0.0

Results

	Noise Limits (dBA)			Noise Limit Exceedance (dBA)		
Calculated (dBA)	Day	Evening	Night	Day	Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	53.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	53.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	53.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	53.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	65.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	65.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	65.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	65.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	55.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	55.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	55.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	55.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.4	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/27/2019
Case Description: Willow Creek Architectural Coating

**** Receptor #1 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 75 ft from NE project boundary	Residential	71.7	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2700.0	0.0
Compressor (air)	No	40		77.7	2700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	43.0	39.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	43.0	39.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	43.0	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Residence 500 ft from NE project boundary	Residential	62.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2850.0	0.0
Compressor (air)	No	40		77.7	2850.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	42.6	38.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	42.6	38.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	42.6	41.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
RMGC clubhouse	Commercial	44.8	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	800.0	0.0
Compressor (air)	No	40		77.7	800.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.6	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DNL Calculator

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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_SR 1**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	55	55	55
Average Daily Trips (ADT)	5163	726	311
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	64.7415	66.2219	69.8543
Calculate Road #1 DNL	72.2245	Reset	

Road # 2 Name: **Existing + Project_SR-1**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	55	55	55
Average Daily Trips (ADT)	6253	879	377
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.5734	67.0524	70.6901
Calculate Road #2 DNL	73.0584	Reset	

Road # 3 Name:

Calculate Road #4 DNL | Reset

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**NaN**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
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Tools and Guidance

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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_SR 1 Solomon Rd to Clark Ave**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	75	75	75
Distance to Stop Sign	250	250	250
Average Speed	55	55	55
Average Daily Trips (ADT)	3997	562	241
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	58.3763	69.8563	69.2791
Calculate Road #1 DNL	72.7307	Reset	

Road # 2 Name: **Existing + Project_SR 1 Solomon Rd to Clark Ave**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	75	75	75
Distance to Stop Sign	250	250	250
Average Speed	55	55	55
Average Daily Trips (ADT)	4743	667	286
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	59.1195	70.6002	70.0226
Calculate Road #2 DNL	73.4744	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**76.1026**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

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- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_Solomon Rd**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	200	200	200
Average Speed	40	40	40
Average Daily Trips (ADT)	1548	49	33
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	52.7647	57.769	61.8573
Calculate Road #1 DNL	63.6906	Reset	

Road # 2 Name: **Existing + Project_Solomon Rd**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	200	200	200
Average Speed	40	40	40
Average Daily Trips (ADT)	1941	61	41
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	53.7473	58.7203	62.8
Calculate Road #2 DNL	64.6385	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**67.1645**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
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Tools and Guidance

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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_Clark Ave-SR 1 to Broadway**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	35	35	35
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	4655	147	98
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	63.7642	68.7582	69.5289
Calculate Road #1 DNL	72.7445	Reset	

Road # 2 Name: **Existing + Project_Clark Ave-SR 1 to Broadway**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	35	35	35
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	5376	170	113
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	64.3896	69.3895	70.1474
Calculate Road #2 DNL	73.3685	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**76.0565**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

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- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_Clark Ave-Broadway to SR 135**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	12920	408	272
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.2533	70.2472	71.0179
Calculate Road #1 DNL	74.2335	Reset	

Road # 2 Name: **Existing + Project_Clark Ave-Broadway to SR 135**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	13580	429	286
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.4696	70.4652	71.2358
Calculate Road #2 DNL	74.4512	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**77.3424**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

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DNL Calculator

Site ID	Key Site 21
Record Date	02/21/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Existing_Clark Ave-East of SR 135**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	14155	447	298
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	66.3555	61.3495	68.8616
Calculate Road #1 DNL	71.2387	Reset	

Road # 2 Name: **Existing + Project_Clark Ave-East of SR 135**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	14618	462	307
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	66.4953	61.4929	68.9908
Calculate Road #2 DNL	71.3724	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**74.3056**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

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DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_SR 1 – Black Rd to Solomon Road**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	55	55	55
Average Daily Trips (ADT)	4413	621	266
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	64.0598	65.5434	69.1755
Calculate Road #1 DNL	71.5453	Reset	

Road # 2 Name:	**Cumulative + Project_SR 1 – Black Rd to Solomon Road**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	55	55	55
Average Daily Trips (ADT)	5503	774	332
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.0185	66.4999	70.1381
Calculate Road #2 DNL	72.5058	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**75.0256**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
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- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
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- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_SR 1 – Solomon Road to Clark Ave**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	75	75	75
Distance to Stop Sign	250	250	250
Average Speed	55	55	55
Average Daily Trips (ADT)	3581	503	216
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	57.899	69.3746	68.8035
Calculate Road #1 DNL	72.2522	Reset	

Road # 2 Name: **Cumulative + Project_SR-1 Solomon Road to Clark Ave**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	75	75	75
Distance to Stop Sign	250	250	250
Average Speed	55	55	55
Average Daily Trips (ADT)	4327	608	261
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	58.7208	70.198	69.6254
Calculate Road #2 DNL	73.0748	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**75.0256**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

DNL Calculator

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Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
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- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_Solomon Rd**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	200	200	200
Average Speed	40	40	40
Average Daily Trips (ADT)	1900	60	40
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	53.6546	58.6486	62.6928
Calculate Road #1 DNL	64.5401	Reset	

Road # 2 Name: **Cumulative + Project_Solomon Rd**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	200	200	200
Average Speed	40	40	40
Average Daily Trips (ADT)	2293	72	48
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	54.4711	59.4404	63.4846
Calculate Road #2 DNL	65.3341	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**67.9371**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
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Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_Clark Ave-SR 1 to Broadway**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	35	35	35
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	9120	288	192
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	66.685	71.679	72.4496
Calculate Road #1 DNL	75.6652	Reset	

Road # 2 Name:	**Cumulative + Project_Clark Ave-SR 1 to Broadway**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	35	35	35
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	9841	311	207
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	67.0154	72.0127	72.7763
Calculate Road #2 DNL	75.9949	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**78.8301**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
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The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
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- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_Clark Ave-Broadway to SR 135**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	12825	405	270
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.2212	70.2152	70.9858
Calculate Road #1 DNL	74.2014	Reset	

Road # 2 Name: **Cumulative + Project_Clark Ave-Broadway to SR 135**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign	500	500	500
Average Speed	40	40	40
Average Daily Trips (ADT)	13485	426	284
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	65.4391	70.4347	71.2054
Calculate Road #2 DNL	74.4207	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**77.3111**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
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Tools and Guidance

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- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Key Site 21
Record Date	03/04/2019
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Cumulative_Clark Ave-East of SR 135**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	18525	585	390
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	67.524	62.518	70.0301
Calculate Road #1 DNL	72.4072	Reset	

Road # 2 Name:	**Cumulative + Project_Clark Ave-East of SR 135**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	55	55	55
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	18988	600	399
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	67.6312	62.628	70.1292
Calculate Road #2 DNL	72.5097	Reset	

Add Road Source | Add Rail Source

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**75.4585**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Appendix K

Traffic and Circulation Study

Neighborhoods of Willow Creek and Hidden Canyon (Key Site 21)

Revised Traffic and Circulation Study

County of Santa Barbara, CA

May 9, 2019

W.O. 2064113400

Prepared By:

Stantec

111 E. Victoria Street
Santa Barbara, CA 93101
Phone: (805) 963-9532

TABLE OF CONTENTS

Introduction **1**
Project Description **1**
Study Area **1**
Study Methodology **4**
Level of Service Criteria 4
Existing Conditions **5**
Street Network 5
Roadway Operations 5
Intersection Operations 6
Project-Specific Analysis **9**
Traffic Impact Thresholds 9
Project Trip Generation 10
Project Trip Distribution 11
Project-Specific Roadway Operations 11
Project-Specific Intersection Operations 14
Cumulative Conditions **15**
Cumulative Traffic Forecasts 15
Cumulative Roadway and Intersection Operations 15
Site Access and Circulation **19**
Mitigation Measures **21**
Project-Specific Mitigations 21
Cumulative Mitigations 21
Congestion Management Plan (CMP) Analysis **21**
Potential Impacts and Mitigations 22

LIST OF TABLES

Table 1: Study Area Roadways and Intersections 1
Table 2: Intersection Level of Service Criteria 4
Table 3: Existing Roadway Levels of Service 6
Table 4: Existing AM and PM Peak Hour Intersection Levels of Service 6
Table 5: Project Trip Generation 10
Table 6: Project Trip Distribution 11
Table 7: Existing + Project Roadway Levels of Service 11
Table 8: AM Peak Hour Existing + Project Intersection Level of Service 14
Table 9: PM Peak Hour Existing + Project Intersection Level of Service 14
Table 10: Cumulative + Project Roadway Levels of Service 15
Table 11: Cumulative + Project PM Peak Hour Intersection Level of Service 18
Table 12: Cumulative + Project PM Peak Hour Intersection Level of Service 18

TABLE OF EXHIBITS

Exhibit 1: Project Location/Street Network 2
Exhibit 2: Project Site Plan 3
Exhibit 3: Existing Roadway and Intersection Geometry 7
Exhibit 4: Existing Traffic Volumes 8
Exhibit 5: Project Trip Distribution and Traffic Volumes 12
Exhibit 6: Existing + Project Traffic Volumes 13
Exhibit 7: Cumulative Traffic Volumes 16
Exhibit 8: Cumulative + Project Traffic Volumes 17
Exhibit 9: Project Driveways Corner Sight Distance Exhibit 20

TECHNICAL APPENDIX

Appendix 1 - County Roadway Classifications and Levels of Service Standards
Appendix 2 - Roadway and Intersection Counts
Appendix 3 - County of Santa Barbara and City of Santa Maria Developments Lists
Appendix 4 - Intersection Levels of Service Calculation Worksheets

INTRODUCTION

Stantec has prepared the following traffic and circulation study the Neighborhoods of Willow Creek and Hidden Canyon Specific Plan (Key Site 21). The traffic and circulation study determines the trip generation and trip distribution for the proposed development, evaluates the potential traffic impacts to the vicinity roadways and intersections, evaluates the proposed access and circulation plan and provides mitigations where applicable.

PROJECT DESCRIPTION

The *Orcutt Community Plan (OCP) FEIR*[1] identifies 45 "Key Sites" located throughout the Orcutt planning area. The project site is identified as Key Site 21. The OCP analyzed full buildout of Key Site 21 assuming 150 single-family homes. The current project proposes to construct 146 single-family homes. The location of the project site is shown in Exhibit 1 and the proposed site plan is illustrated in Exhibit 2. Access is proposed via two new driveway connections to State Route 1 (SR 1).

STUDY AREA

The project study-area is located in the western section of the Orcutt Planning Area (OPA) and is generally bounded by Black Road to the west, SR 135 to the east, Union Valley Parkway to the north and the SR 1 to the south.

The roadway segments and intersections identified for analysis in the traffic and circulation were obtained from County staff. Table 1 lists the key roadways and intersections.

Table 1
Study-Area Roadways and Intersections

Roadways	Intersections
SR 1 n/o Solomon Rd	SR 1/Black Rd
SR 1 n/o Clark Ave	SR 1/Solomon Rd
Solomon Rd e/o SR 1	SR 1/Clark Ave
Clark Ave w/o Broadway St	Broadway St/Clark Ave
Clark Ave w/o Norris St	Foxenwood Ln/Clark Ave
Clark Ave e/o Orcutt Rd	SR 135 SB Ramps/Clark Ave
	SR 135 NB Ramps/Clark Ave
	Orcutt Rd/Clarke Ave

[1] Orcutt Community Plan Update, Final Environmental Impact Report, County of Santa Barbara, December 2005.

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EXHIBIT 1
PROJECT LOCATION/
EXISTING STREET NETWORK

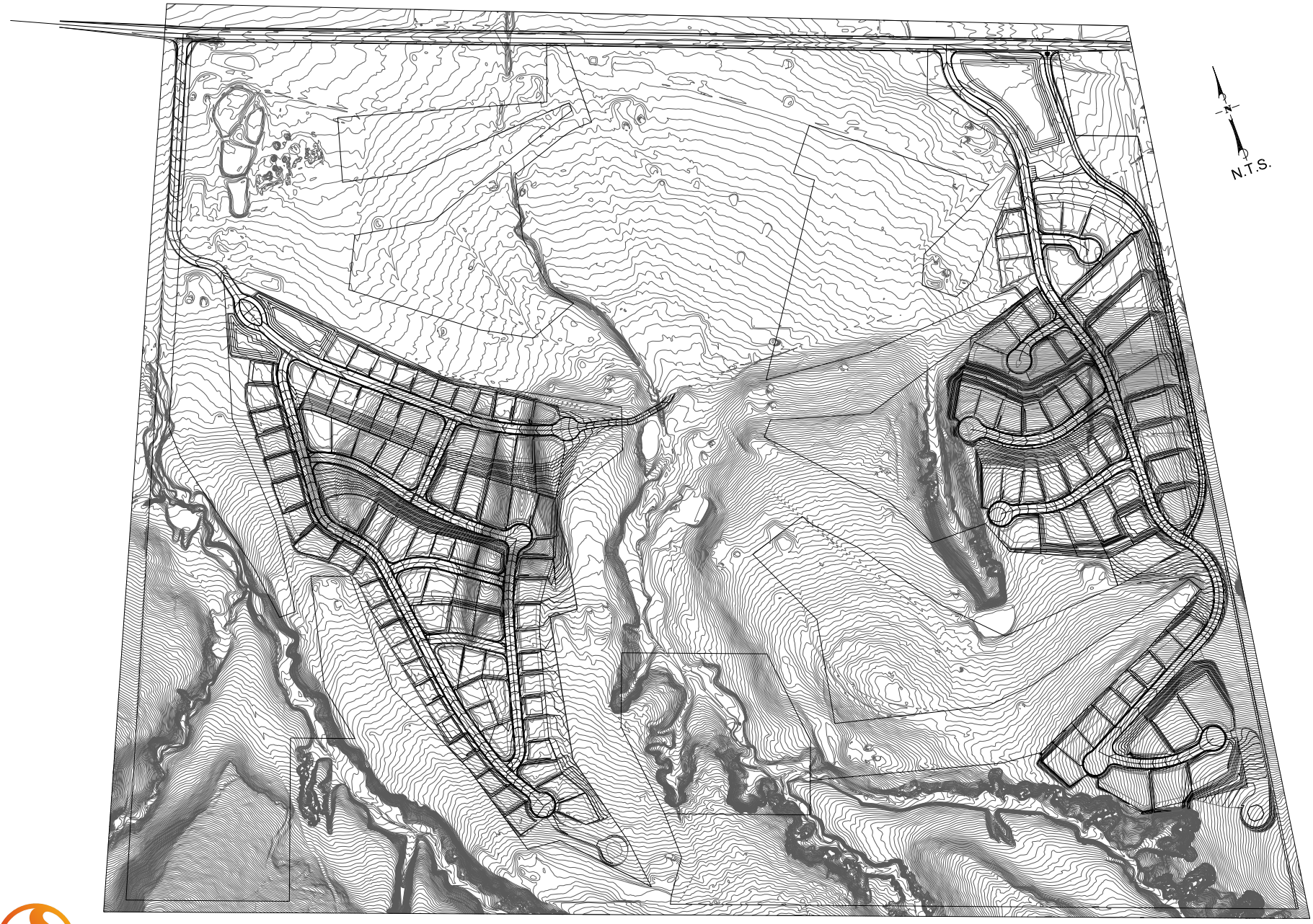

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EXHIBIT 2
PROJECT SITE PLAN

STUDY METHODOLOGY

Level of Service Criteria

To identify the operating condition at the study area roadways and intersections, a level of service (LOS) ranking scale was used. This scale compares traffic volumes to roadway and intersection capacity and assigns a letter value to this relationship. The letter scale ranges from A to F with LOS A representing free flow conditions and LOS F representing congested conditions. The County's acceptable level of service standard for roadways and intersections within the Orcutt Planning Area is LOS C, except that LOS D shall be maintained at all Clark Avenue roadway segments and intersections between Blosser Road on the west and Foxenwood Lane on the east.

Roadways. Levels of service for the roadways within the study area are based on the County's engineering design capacities for roadways and the Circulation Element roadway designations adopted in the Orcutt Community Plan. A table discussing the roadway definitions and capacities is included in the Technical Appendix.

I*ntersections*. Levels of service for signalized intersections are calculated using the Intersection Capacity Utilization Methodology (ICU) and the results are shown as a volume to capacity ratio. Level of service for the unsignalized intersections in the study area were calculated using Highway Capacity Software (HCS), which applies the methodologies outlined in the Highway Capacity Manual (HCM)[2] and the results are presented as seconds of vehicle delay. Table 2 summarizes the LOS definitions.

Table 2
Intersection Level of Service Criteria

LOS	**Signalized intersections** (V/C Ratio)	**Unsignalized intersections** (sec. of delay)	**Definition**
A	< 0.60	≤ 10	Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.
B	0.61 – 0.70	> 10 and ≤ 15	Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.
C	0.71- 0.80	> 15 and ≤ 25	Conditions of stable flow, delays are low to moderate, full use of peak direction signal phases is experienced.
D	0.81 – 0.90	> 25 and ≤ 35	Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.
E	0.91 – 1.00	> 35 and ≤ 50	Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.
F	> 1.00	> 50	Conditions of forced flow, travel speeds are low and volumes are well above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal

Source: Highway Capacity Manual, 6th Edition

[2] Highway Capacity Manual, Transportation Research Board, 2016.

EXISTING CONDITIONS

Street Network

The principal components of the roadway network in the western portion of the OPA are discussed in the following paragraphs.

State Highways. *State Route 1 (SR 1)* is a two-lane highway serving the communities of Guadalupe, Oceano, and Grover Beach to the north and Lompoc to the south. Just south of the project, Route 1 merges with SR 135 for a short distance. The intersections at Black Road, Solomon Road, and Clark Avenue are controlled by stop signs.

State Route 135 (SR 135) is a primary north-south route through the Santa Maria/Orcutt urban area. From its junction with State Route 1, Route 135 is a four-lane freeway with a full-access diamond interchange at Clark Avenue. North of Clark Avenue, Route 135 is a limited access four-lane expressway, with signalized access at its intersection with Foster Road and Lakeview Drive.

Arterial Streets. *Clark Avenue* is an east-west arterial that extends through the Orcutt area from east of U.S. Highway 101 to Route 1 on the west. It provides connections to both U.S. 101 and Route 135 via full access interchanges. Clark Avenue is a two-lane Primary 3 roadway between SR 1 and SR 135 and a four-lane Primary 2 roadway east of State Route 135.

Broadway Street is a north-south facility that is classified as a Secondary 2 roadway north of Clark Avenue and a Primary 3 arterial south of Clark Avenue.

Collector Streets. *Solomon Road* is a two-lane Secondary 1 roadway that extends easterly from SR 1 to Blosser Road. It provides access to the project site from the northeast portion of Orcutt and regional traffic using Union Valley Parkway.

Orcutt Road is a two-lane secondary roadway that parallels the east side of Route 135. Orcutt Road extends from north of Lakeview Road to Rice Ranch Road.

Roadway Operations

Existing average daily traffic (ADT) volumes were derived from roadway counts collected in May 2018. The roadway classification and design capacities, as presented in the OCP, are summarized below in Table 3.

Comparison of the existing ADT volume and the corresponding design capacities for each roadway shows that the roadway segments in the study area currently operate in the LOS A range, which is acceptable based on the County's standards.

Table 3
Existing Roadway Levels of Service

Roadway Segment	Classification	Number of Lanes	Existing ADT	Acceptable LOS Threshold	Existing LOS
SR 1 n/o Solomon Rd	Primary 1	2 lanes	6,200 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	2 lanes	4,800 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	2 lanes	1,630 ADT	7,300 ADT	LOS A
Clark Ave w/o Broadway St	Primary 3	2 lanes	4,900 ADT	12,500 ADT	LOS A
Clark Ave w/o Norris St	Primary 3	2 lanes	10,800 ADT	14,100 ADT[1]	LOS B
Clark Ave w/o Foxenwood Ln	Primary 3	4 lanes	13,600 ADT	33,900 ADT[1]	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	4 lanes	14,900 ADT	34,000 ADT	LOS A

[1] Acceptable level of service threshold for roadway segment is LOS D.
LOS C threshold is defined as 80% of design capacity, and LOS D threshold is defined as 90% of design capacity.

Intersection Operations

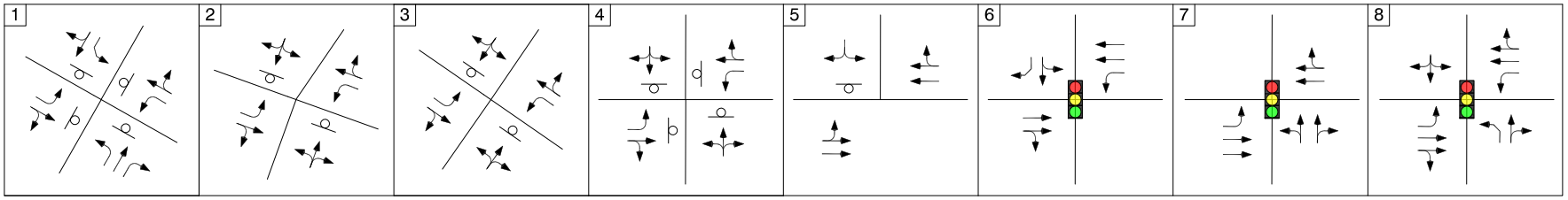
Intersection levels of service were calculated for the AM and PM peak hours based on turning volume counts collected by Stantec on May 23, 2018. The intersection geometry and control are illustrated in Exhibit 3 and the AM and PM peak hour volumes are illustrated in Exhibit 4. Levels of service were calculated for the study-area intersections based on the level of service methodology outlined previously. The existing intersection levels of service are summarized in Table 4.

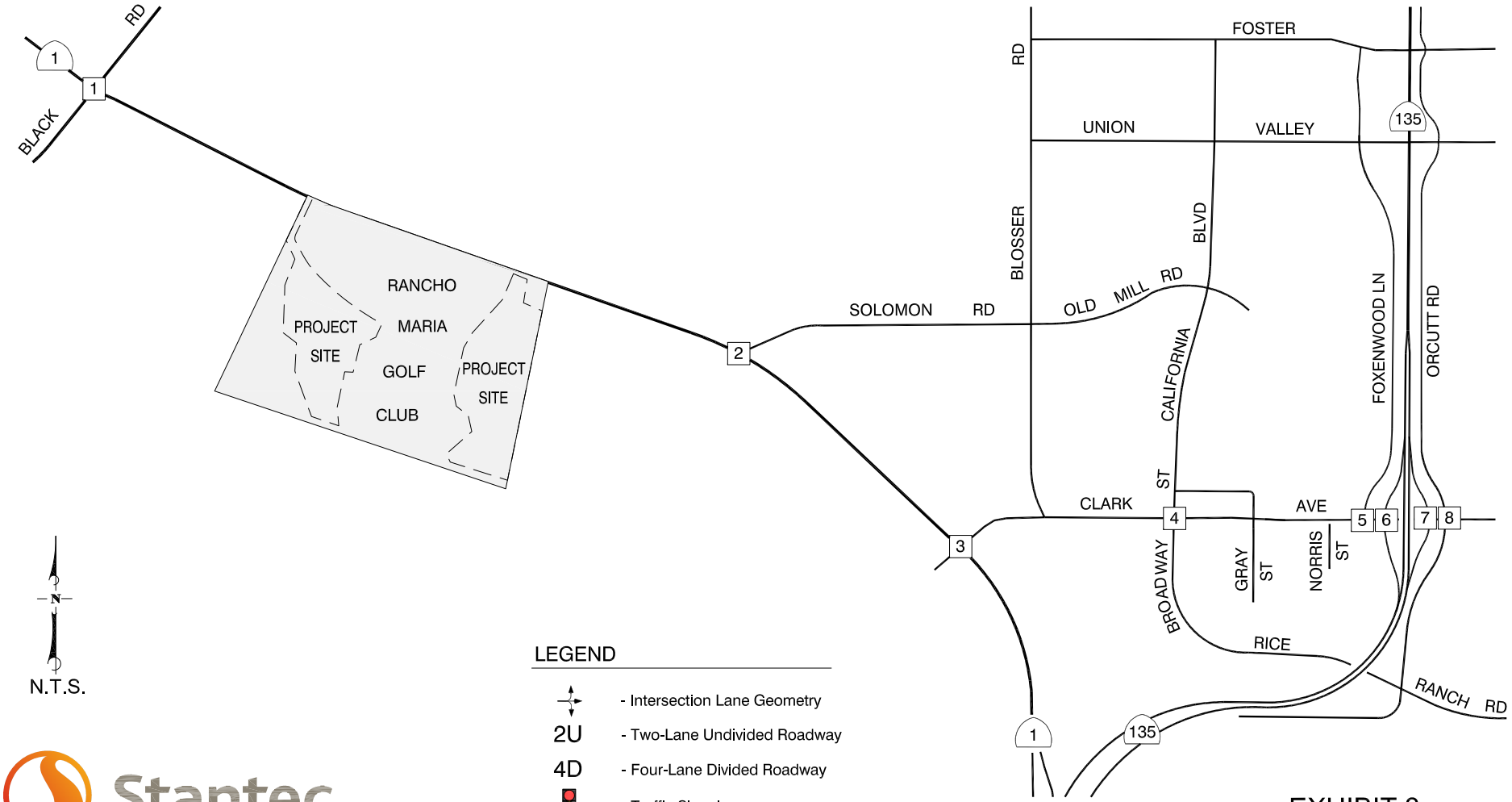
As shown, all study area intersections currently operate at LOS C or better during the AM and PM peak hour, which is considered acceptable based on the County's level of service standard of LOS C.

Table 4
Existing AM and PM Peak Hour Intersection Levels of Service

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay	V/C Ratio	Delay	V/C Ratio
SR 1/Black Rd	All-Way Stop	10.2 sec/LOS B	-	11.2 sec/LOS B	
SR 1/Solomon Rd	Two-Way Stop	14.7 sec/LOS B	-	13.6 sec/LOS B	
SR 1/Clark Ave	Two-Way Stop	12.0 sec/LOS B	-	13.9 sec/LOS B	
Broadway St/Clark Ave	All-Way Stop	9.7 sec/LOS A	-	10.5 sec/LOS B	
Foxenwood Ln/Clark Ave	One-Way Stop	18.2 sec/LOS C	-	16.9 sec/LOS C	
SR 135 SB Ramps/Clark Ave	Signal	18.1 sec/LOS B	0.47/LOS A	15.4 sec/LOS B	0.48/LOS A
SR 135 NB Ramps/Clark Ave	Signal	21.7 sec/LOS C	0.48/LOS A	16.1 sec/LOS B	0.46/LOS A
Orcutt Rd/Clarke Ave	Signal	-	0.53/LOS A	-	0.53/LOS A

Delay for two-way stop controlled intersection is highest delay on side street.





N.T.S.

LEGEND

- Intersection Lane Geometry
- 2U - Two-Lane Undivided Roadway
- 4D - Four-Lane Divided Roadway
- Traffic Signal
- Stop Sign

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EXHIBIT 3
EXISTING ROADWAY AND INTERSECTION GEOMETRY

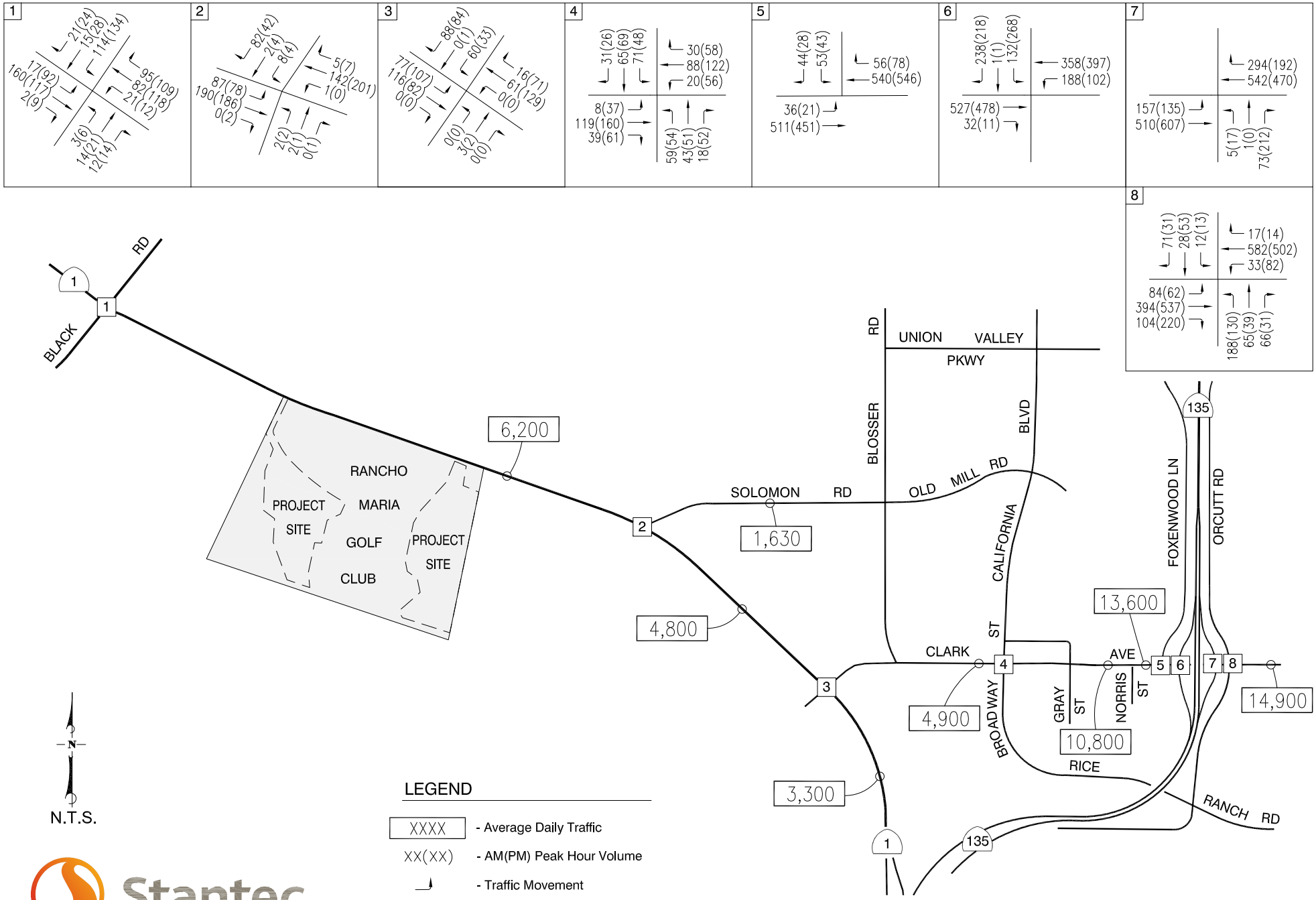

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EXHIBIT 4
EXISTING TRAFFIC VOLUMES

PROJECT-SPECIFIC ANALYSIS

Traffic Impact Thresholds

The County's CEQA Thresholds and the standards contained in the Orcutt Community Plan were applied to evaluate the project's consistency with County policy and to determine if any potential traffic impacts would be associated with the project. The applicable traffic thresholds are outlined below.

County of Santa Barbara CEQA Thresholds

The Environmental Thresholds and Guidelines Manual (County of Santa Barbara, 1992) provides criteria by which to evaluate a project's environmental impacts according to the California Environmental Quality Act (CEQA). The thresholds for traffic impacts are listed below.

Threshold Criteria

The impacts of project-generated traffic are assessed against the following County thresholds. A significant traffic impact occurs when:

1. The addition of project traffic to an intersection increases the volume to capacity (V/C) ratio by the value provided below or sends at least 5, 10, or 15 trips to intersections operating at LOS F, E or D.

Level of Service (including project)	Increase in V/C Greater than
A	0.20
B	0.15
C	0.10
	or the addition of
D	15 trips
E	10 trips
F	5 trips

2. Project access to a major road or arterial road would require a driveway that would create an unsafe situation or a new traffic signal or major revisions to an existing traffic signal.

3. Project adds traffic to a roadway that has design features (e.g. narrow width, road side ditches, sharp curves, poor sight distance, inadequate pavement structure) or receives use which would be incompatible with substantial increase in traffic (e.g. Rural roads with use by farm equipment, livestock, horseback riding, or residential roads with heavy pedestrian or recreational use, etc.) that will become potential safety problems with the addition of project or cumulative traffic. Exceedence of the roadway's designated Circulation Element Capacity may indicate the potential for the occurrence of the above impacts.

4. Project traffic would utilize a substantial portion of an intersection(s) capacity where the intersection is currently operating at acceptable levels of service (A-C) but with cumulative traffic would degrade to or approach LOS D (V/C 0.81) or lower. Substantial is defined as a minimum change of 0.03 for intersections which would operate from 0.80 to 0.85 and a change of 0.02 for intersections which would operate from 0.86 to 0.90, and 0.01 for intersections operating at anything lower.

Orcutt Community Plan Standards for Determination of Project Consistency

Consistency Standards for Primary Roadways (P-1 through P-3)

1. For Primary roadways segments, a project is considered consistent with the Community Plan where the Estimated Future Volume does not exceed the Acceptable Capacity.

2. For Primary roadway segments where the Estimated Future Volume exceeds the Acceptable Capacity, a project is considered consistent with the Community Plan if:

   A. intersections affected by traffic assigned from the project operate at or above minimum level of service standards, or
   B. if the project provides a contribution toward an alternative transportation project (as defined in the OTIP) that is deemed to offset the effects of project-generated traffic.

Caltrans. Caltrans has established the cusp of the LOS C/D range as the target level of service standard for State Highway intersections. If an existing State Highway facility is operating at less than the target LOS, the existing Measure of Effectiveness (MOE) should be maintained.

Project Trip Generation

The project The current project proposes to construct 146 single-family homes. Trip generation estimates were developed for the proposed project based on rates contained in ITE's *Trip Generation Manual*[3] for Single-Family Detached Housing (Land Use #210). The trip generation estimates are shown in Table 5.

Table 5
Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour Trips		P.M. Peak Hour Trips	
		Rate	Trips	Rate	Trips (in/out)	Rate	Trips (in/out)
Single Family Housing (Land Use #210)	146 Units	9.44	1,.378	0.74	108 (27/81)	0.99	145 (91/54)

As shown, the proposed development is expected to generate 1,378 daily trips, with 108 trips occurring in the AM peak hour and 145 trips occurring in the PM peak hour.

[3] Trip Generation, Institute of Transportation Engineers, 10th Edition, September 2017.

Project Trip Distribution

Project trips were distributed and assigned to the street network based on the trip distribution percentages developed for the traffic and circulation study completed in 2005 for the project site[4]. The trip distribution was adjusted to account for street network changes that have been implemented since 2005. Specifically, Union Valley Parkway has been extended to Blosser Road and now provides an alternative route for regional traffic via Blosser Road and Solomon Road to the site. The project distribution percentages are shown in Table 6 and the project distribution percentages and project-added traffic volumes are illustrated in Exhibit 5.

Table 6
Project Trip Distribution

Roadway (to/from)	Direction	Trip Distribution
Clark Avenue	East	35%
Union Valley Parkway	Northeast	30%
SR 135	North	15%
SR 1	South	10%
Black Road	North	5%
Old Town Orcutt	East	5%
Total		**100%**

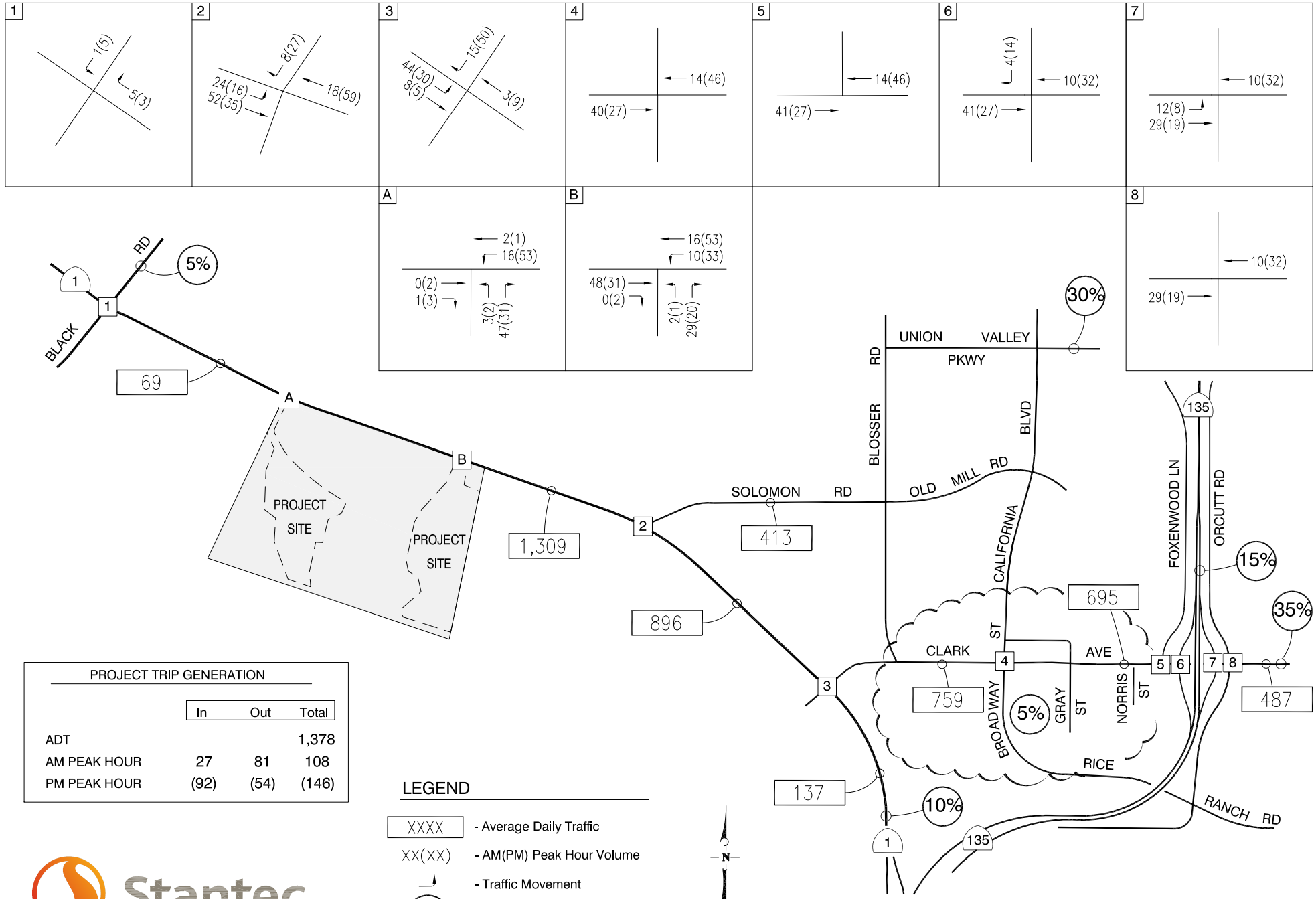
Project-Specific Roadway Operations

Project generated traffic volumes were added to the existing peak hour traffic volumes and roadway operations were evaluated assuming project-specific conditions. The existing plus project ADT volumes are illustrated in Exhibit 6 and Table 7 shows the existing plus project ADT and level of service for the study-area roadway segments.

Table 7
Existing + Project Roadway Levels of Service

Roadway Segment	Classification	Existing ADT	Existing + Project ADT	Acceptable LOS Threshold	Existing + Project LOS
SR 1 n/o Solomon Rd	Primary 1	6,200 ADT	7,509 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	4,800 ADT	5,696 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	1,630 ADT	2,043 ADT	7,300 ADT	LOS A
Clark Ave w/o Broadway St	Primary 3	4,900 ADT	5,659 ADT	12,500 ADT	LOS A
Clark Ave w/o Norris St	Primary 3	10,800 ADT	11,495 ADT	14,100 ADT	LOS C
Clark Ave w/o Foxenwood Ln	Primary 3	13,600 ADT	14,295 ADT	33,900 ADT	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	14,900 ADT	15,387 ADT	34,000 ADT	LOS A

[4] Rancho Maria Estates, Traffic Impact Study, Penfield & Smith Engineers, September 2005.



PROJECT TRIP GENERATION

	In	Out	Total
ADT			1,378
AM PEAK HOUR	27	81	108
PM PEAK HOUR	(92)	(54)	(146)

LEGEND

XXXX	- Average Daily Traffic
XX(XX)	- AM(PM) Peak Hour Volume
	- Traffic Movement
7%	- Trip Distribution Percentage

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EXHIBIT 5
PROJECT TRIP DISTRIBUTION
AND TRAFFIC VOLUMES

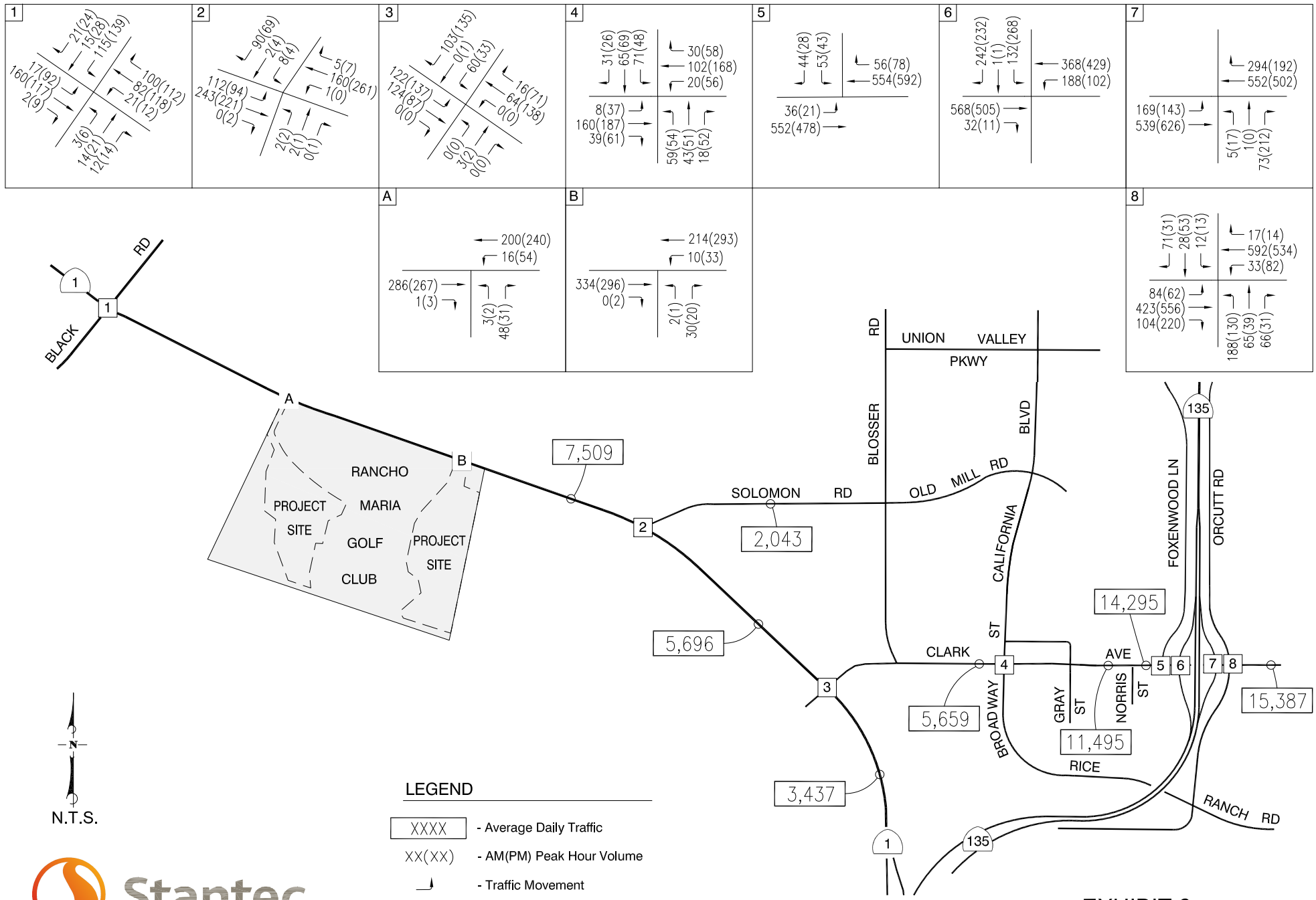

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EXHIBIT 6
EXISTING + PROJECT ADT AND PEAK HOUR TRAFFIC VOLUMES

Project-Specific Intersection Operations

The existing + project AM and PM peak hour intersection volumes are illustrated in Exhibit 6 and Tables 8 and 9 summarize the intersection level of service calculations. As shown, the study-area intersections would continue to operate at LOS C or better during the AM and PM peak hour under project-specific conditions, which is considered acceptable based on County and Caltrans standards. The project would result in less than significant project-specific intersection impacts.

Table 8
AM Peak Hour
Existing + Project Intersection Level of Service

Intersection	Existing		Existing + Project		Change in Delay or V/C	Impact?
	Delay	V/C Ratio	Delay	V/C Ratio		
SR 1/Black Rd	10.2 sec/LOS B	-	10.2 sec/LOS B	-	0.0 sec	No
SR 1/Solomon Rd	14.7 sec/LOS B	-	17.1 sec/LOS C	-	2.4 sec	No
SR 1/Clark Ave	12.0 sec/LOS B	-	13.3 sec/LOS B	-	1.3 sec	No
Broadway St/Clark Ave	9.7 sec/LOS A	-	10.1 sec/LOS B	-	0.4 sec	No
Foxenwood Ln/Clark Ave	18.2 sec/LOS C	-	19.0 sec/LOS C	-	0.8 sec	No
SR 135 SB Ramps/Clark Ave	18.1 sec/LOS B	0.47/LOS A	18.6 sec/LOS B	0.49/LOS A	0.5 sec/0.02	No
SR 135 NB Ramps/Clark Ave	21.7 sec/LOS C	0.48/LOS A	21.7 sec/LOS C	0.49/LOS A	0 sec/0.01	No
Orcutt Rd/Clarke Ave	-	0.53/LOS A	-	0.53/LOS A	0.00	No

Delay for two-way stop controlled intersection is highest delay on side street.

Table 9
PM Peak Hour
Existing + Project Intersection Level of Service

Intersection	Existing		Existing + Project		Change in Delay or V/C	Impact?
	Delay	V/C Ratio	Delay	V/C Ratio		
SR 1/Black Rd	11.2 sec/LOS B	-	11.3 sec/LOS B	-	0,1 sec	No
SR 1/Solomon Rd	13.6 sec/LOS B	-	16.0 sec/LOS C	-	2.4 sec	No
SR 1/Clark Ave	13.9 sec/LOS B	-	15.2 sec/LOS C	-	1.3 sec	No
Broadway St/Clark Ave	10.5 sec/LOS B	-	11.2 sec/LOS B	-	0.7 sec	No
Foxenwood Ln/Clark Ave	16.9 sec/LOS C	-	18.2 sec/LOS C	-	1.3 sec	No
SR 135 SB Ramps/Clark Ave	15.4 sec/LOS B	0.48/LOS A	15.5 sec/LOS B	0.49/LOS A	0.1 sec/0.01	No
SR 135 NB Ramps/Clark Ave	16.1 sec/LOS B	0.46/LOS A	16.4 sec/LOS B	0.48/LOS A	0.3 sec/0.02	No
Orcutt Rd/Clarke Ave	-	0.53/LOS A	-	0.53/LOS A	0.00	No

Delay for two-way stop controlled intersection is highest delay on side street.

CUMULATIVE CONDITIONS

Cumulative Traffic Forecasts and Roadway Network

The cumulative forecasts assume development of approved and pending projects in the Santa Maria Valley (including Old Town Orcutt & Orcutt Community Plan, and projects not within a community or Specific Plan area). The County's *Cumulative Projects List (September 2017)* and the City of Santa Maria *Major Developments List (January 2018)* are included in the Technical Appendix for reference. Pending and approved projects that have a direct effect on the study-area roadway network include the North County Jail GPA (Black Rd & Betteravia Rd), Key Site 17 (Old Town Orcutt), Key sites 11 and 18 (Oasis Community Center) and the Rice Ranch Specific Plan.

Frontage improvements associated with the proposed Oasis Community Center, proposed north of Clark Avenue and west of Foxenwood Lane, would include construction a raised median on Clark Avenue from Norris Street to Foxenwood Lane and provision of an eastbound left-turn lane at the Clark Avenue/Foxenwood Lane intersection. The number of eastbound lanes on Clark Avenue would be reduced from two lanes to one lane. Foxenwood lane would be widened and restriped to provide separate southbound left-turn and right-turn lanes.

Cumulative Roadway and Intersection Operations

The cumulative and cumulative plus project traffic volumes are shown in Exhibit 7 and Exhibit 8, respectively. Table 10 shows the cumulative and cumulative plus project level of service calculation for the study area roadways. As shown, the study-area roadway segments are forecast to operate in the LOS A-C range under cumulative plus project conditions. The project would result in less than significant impacts on roadways under cumulative conditions.

Table 10
Cumulative + Project Roadway Levels of Service

Roadway Segment	Classification	Cumulative ADT	Cumulative + Project ADT	Acceptable LOS Threshold	Existing + Project LOS
SR 1 n/o Solomon Rd	Primary 1	5,300 ADT	6,609 ADT	15,900 ADT	LOS A
SR 1 n/o Clark Ave	Primary 1	4,300 ADT	5,196 ADT	15,900 ADT	LOS A
Solomon Rd e/o SR 1	Secondary 1	2,000 ADT	2,413 ADT	7,300 ADT	LOS A
Clark Ave w/o Broadway St	Primary 3	9,600 ADT	10,359 ADT	12,500 ADT	LOS B
Clark Ave w/o Norris St	Primary 3	11,700 ADT	12,395 ADT	14,100 ADT	LOS C
Clark Ave w/o Foxenwood Ln	Primary 3	14,500 ADT	15,195 ADT	25,400 ADT[1]	LOS A
Clark Ave e/o Orcutt Rd	Primary 2	19,500 ADT	19,987 ADT	34,000 ADT	LOS A

[1] LOS D threshold capacity adjusted from 33,900 ADT (Primary 3 roadway with 4 lanes) to 25,400 ADT (Primary 3 roadway with 3 lanes) to account for future EB lane reduction from two lanes to one lane.

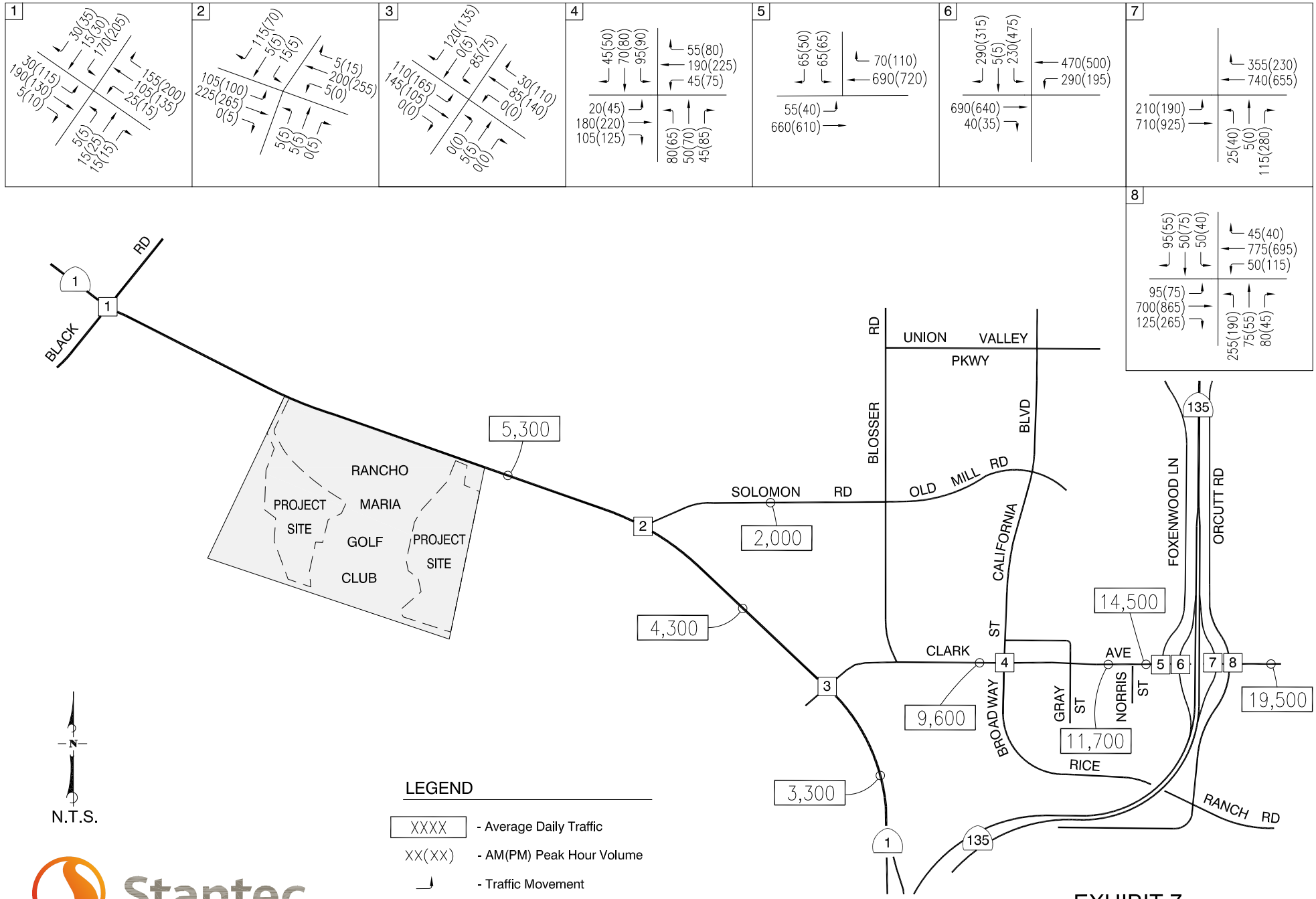

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EXHIBIT 7
CUMULATIVE ADT AND PEAK HOUR TRAFFIC VOLUMES

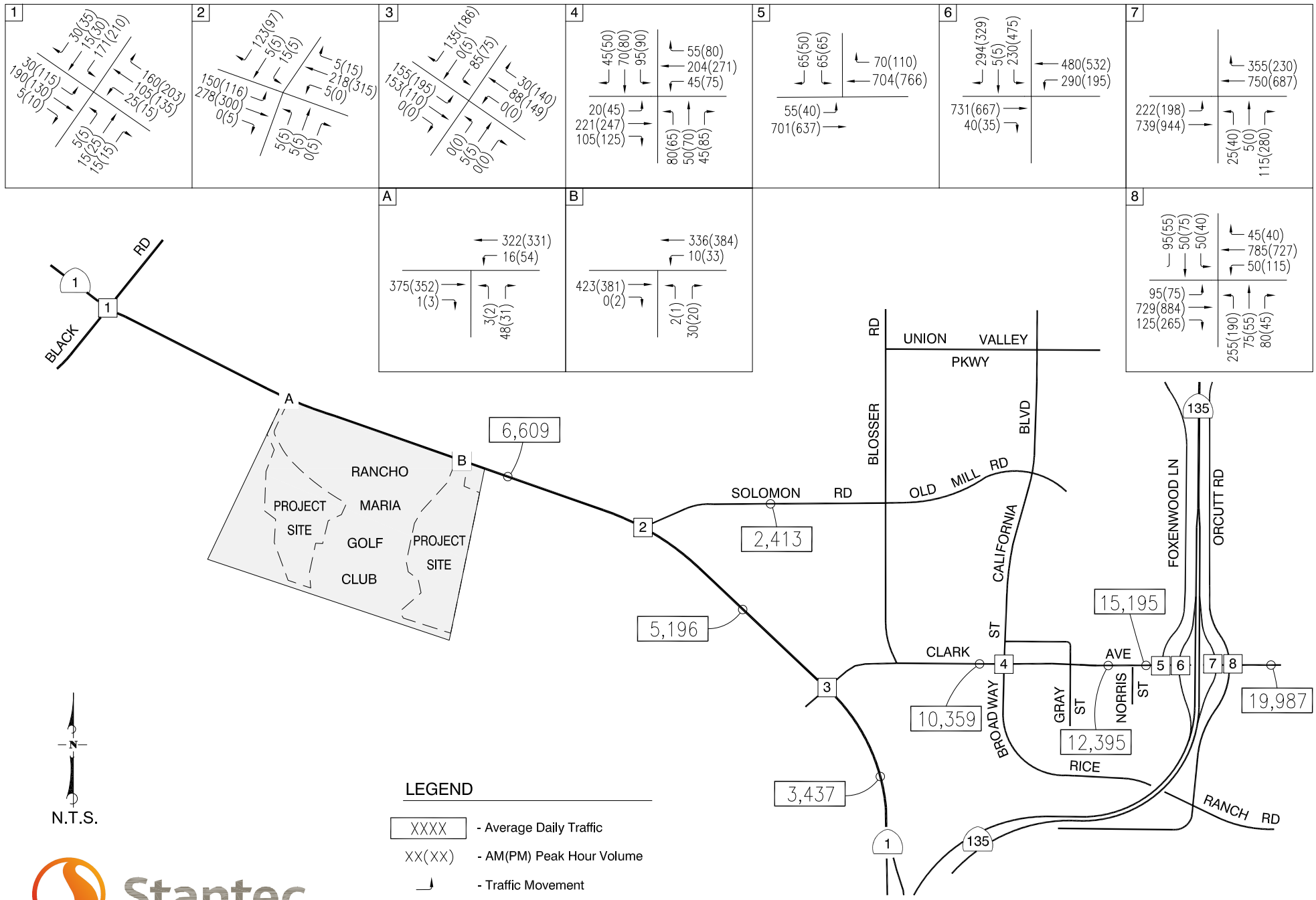

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EXHIBIT 8
CUMULATIVE + PROJECT
ADT AND PEAK HOUR TRAFFIC VOLUMES

Intersection levels of service were recalculated assuming cumulative and cumulative plus project AM and PM peak hour traffic volumes. The level of service calculation results are summarized in Tables 11 and 12. The tables indicate that the project would generate a cumulative impact at the Foxenwood Lane/Clark Avenue intersection during the AM and PM peak hours by adding delay to the intersection which is expected to operate at LOS F assuming the cumulative geometry modifications. Mitigation measures that could reduce these cumulative impacts to a level of insignificance are discussed in the Mitigations section.

Table 11
AM Peak Hour
Cumulative + Project Intersection Level of Service

Intersection	Cumulative		Cumulative + Project		Change in Delay or V/C	Impact?
	Delay	V/C Ratio	Delay	V/C Ratio		
SR 1/Black Rd	12.6 sec/LOS B	-	12.7 sec/LOS B	-	0.1 sec	No
SR 1/Solomon Rd	18.3 sec/LOS C	-	21.0 sec/LOS C	-	2.7 sec	No
SR 1/Clark Ave	13.7 sec/LOS B	-	15.6 sec/LOS C	-	1.9 sec	No
Broadway St/Clark Ave	13.0 sec/LOS B	-	14.9 sec/LOS B	-	1.9 sec	No
Foxenwood Ln/Clark Ave	**>50.0 sec/LOS F**	-	**>50.0 sec/LOS F**	-	10.5 sec	**Yes**
SR 135 SB Ramps/Clark Ave	22.5 sec/LOS C	0.66/LOS B	23.7 sec/LOS C	0.67/LOS B	1.2 sec/0.01	No
SR 135 NB Ramps/Clark Ave	29.6 sec/LOS C	0.62/LOS B	30.4 sec/LOS C	0.64/LOS B	0.5 sec/0.02	No
Orcutt Rd/Clarke Ave	-	0.70/LOS B	-	0.70/LOS B	0.00	No

Delay for two-way stop controlled intersection is highest delay on side street.
Bolded values exceed County LOS C standard.

Table 12
PM Peak Hour
Cumulative + Project Intersection Level of Service

Intersection	Cumulative		Cumulative + Project		Change in Delay or V/C	Impact?
	Delay	V/C Ratio	Delay	V/C Ratio		
SR 1/Black Rd	15.5 sec/LOS C	-	15.6 sec/LOS C	-	0.1 sec	No
SR 1/Solomon Rd	16.4 sec/LOS C	-	19.7 sec/LOS C	-	3.3 sec	No
SR 1/Clark Ave	18.3 sec/LOS C	-	22.0 sec/LOS C	-	3.7 sec	No
Broadway St/Clark Ave	16.5 sec/LOS C	-	19.5 sec/LOS C	-	3.0 sec	No
Foxenwood Ln/Clark Ave	**>50.0 sec/LOS F**	-	**>50.0 sec/LOS F**	-	13.8 sec	**Yes**
SR 135 SB Ramps/Clark Ave	23.3 sec/LOS C	0.73/LOS C	23.6 sec/LOS C	0.74/LOS C	0.3 sec/0.01	No
SR 135 NB Ramps/Clark Ave	17.6 sec/LOS B	0.60/LOS A	18.3 sec/LOS B	0.61/LOS B	0.7 sec/0.01	No
Orcutt Rd/Clarke Ave	-	0.75/LOS C	-	0.76/LOS C	0.01	No

Delay for two-way stop controlled intersection is highest delay on side street.
Bolded values exceed County LOS C standard.

SITE ACCESS AND CIRCULATION

Access to the site is proposed via a full access connection to SR 1 at the western boundary of the site and a full access connection to SR 1 between the Rancho Maria Golf Course entrance and the eastern boundary of the site. Secondary (emergency) access is proposed via a right-turn in-and-out only connection to SR 1 and a driveway that would extend from the golf course parking lot.

Proposed frontage improvements include widening of SR 1 at the two full access intersections to provide 12' travel lanes, 12' westbound left-turn lane and 8' shoulders. Because SR 1 is a State facility, intersection design including left-turn channelization and deceleration will conform to the design criteria contained in *Topic 405 – Intersection Design Standards* of the *Highway Design Manual (HDM)*[5].

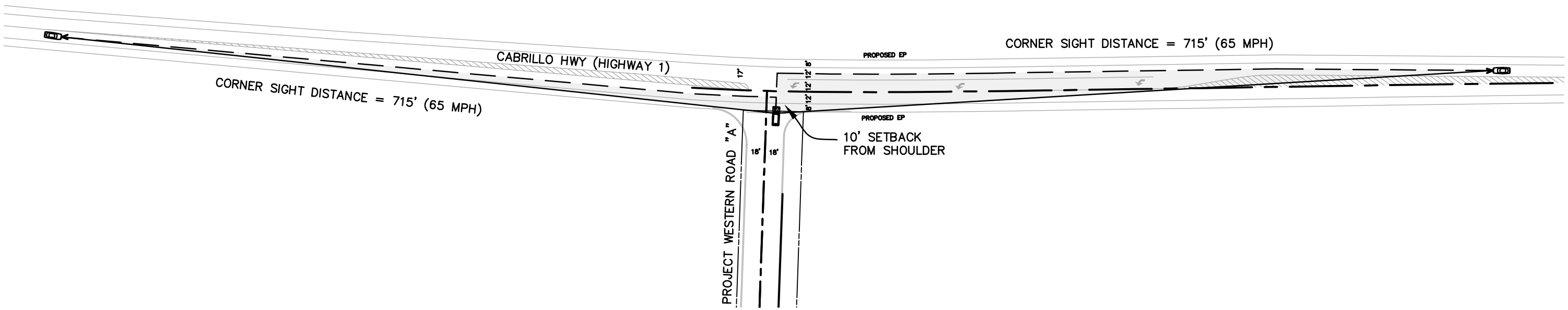
A sight distance analysis conducted pursuant the criteria contained in the *HDM Topic 405* indicates that corner sight distance requirements from a vehicle on the project driveway to an approaching vehicle on SR 1 assuming a design speed of 65 mph (corner sight distance requirement of 715 feet) are provided at both full access project intersections. The corner sight lines are illustrated in Exhibit 9.

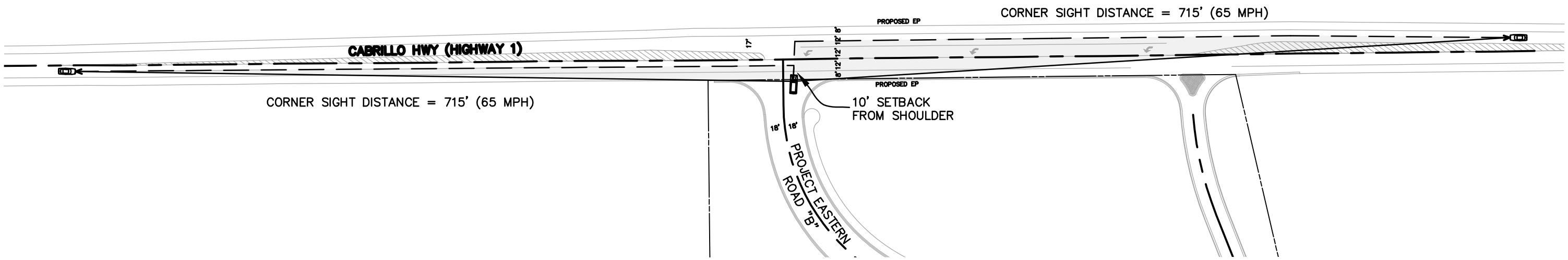
The preliminary site plan indicates that the on-site circulation of the western development consists of a main driveway that connects to the residential streets serving the single-family dwellings. Secondary (emergency) access is proposed via a connection to the golf course parking lot. Similarly, the access plan for the eastern project development consists of one main driveway and residential streets. Secondary (emergency) access is proposed via a 25-foot driveway located along the site's eastern boundary. The on-site circulation plan will be designed pursuant County design standards to accommodate emergency vehicles, service vehicles and delivery trucks.

The Orcutt Community Plan (OCP) identifies a proposed extension of Union Valley Parkway (UVP) through Key Site 22, located directly across and north of the Rancho Maria Golf Club, to SR 1. Previous discussions with County Public Works staff indicated that the ultimate location of the UVP connection to SR 1 has not been determined and may not align with the proposed easterly driveway because of several factors, as discussed below:

- Although, a "preferred roadway alignment" has been identified in the Orcutt Community Plan, this alignment is not final and the location and width of the roadway is largely dependent upon the intensity of the development on Key Site 22. Given the land constraints on the property, development may not occur in the foreseeable future.
- If UVP were to be extended in the future, the County could develop alternative alignments to accommodate project access locations, or may be agreeable to a UVP intersection between the project access driveways.

[5] Highway Design Manual, Chapter 400 Intersections at Grade, Caltrans, Revised July 2, 2018..





LEGEND

CORNER SIGHT DISTANCE TRIANGLE REQUIREMENT FROM VEHICLE ON PROJECT ROAD TO VEHICLE APPROACHING ON STATE ROUTE 1.

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N
1"=100'

EXHIBIT 9
PROJECT DRIVEWAYS
CORNER SIGHT DISTANCE EXHIBT

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MITIGATION MEASURES

Project-Specific Mitigations

The traffic analysis found that the proposed Neighborhoods of Willow Creek and Hidden Canyon would have less than a significant impact under project-specific conditions. All roadway segments and intersections within the study area would continue to operate acceptably based on County and Caltrans level of service standards. No project-specific mitigations are therefore required.

Cumulative and Mitigations

The cumulative analysis indicated that the project would generate a cumulative impact at the Foxenwood Lane/Clark Avenue intersection during the AM and PM peak hours. The intersection would operate at LOS F as a result of delays on the southbound left-turn lane. The following measures could be considered to reduce future delays at the intersection:

- Retain the existing geometry of two eastbound travel lanes on Clark Avenue. This would result in reduced delays to cusp of LOS C/D under cumulative conditions.
- Installation of a traffic signal at the intersection would result in a signalized corridor from Foxenwood Lane to Orcutt Road with coordinated traffic signals, and the intersection would operate at LOS C or better under cumulative conditions. However, it is noted that the cumulative traffic volumes do not satisfy traffic signal warrants.

The applicant shall pay transportation fees to the County to offset its proportionated share of project contributions to cumulative impacts on traffic and circulation systems maintenance, in an amount determined by the County Public Works/Transportation Division, based on adopted fee schedules at the time of payment.

CONGESTION MANAGEMENT PROGRAM (CMP) ANALYSIS

The Santa Barbara County Association of Governments (SBCAG) has developed a set of traffic impact guidelines to assess impacts of land use decisions made by local jurisdictions on regional transportation facilities located within the Congestion Management Program (CMP)[6] roadway system. The SBCAG Congestion Management Program establishes a minimum intersection level of service of LOS D. The following guidelines were developed by SBCAG to determine the significance of potential traffic impacts on the regional CMP system.

- For any roadway or intersection operating at LOS A or B, a decrease of two levels of service from project added traffic;
- For any roadway or intersection operating at LOS C, project-added traffic that results in a LOS D or worse; and
- For any intersection with existing congestion, the following project-added trips constitute a significant impact:

  - 20 peak hour critical movement trips for LOS D.
  - 10 peak hour critical movement trips for LOS E.
  - 10 peak hour critical movement trips for LOS F.

[6] Final Congestion Management Program, SBCAG, October 20, 2016.

- For freeway or highway segments with existing congestion, the following project-added trips constitute a significant impact:

  - 100 peak hour critical movement trips for LOS D.
  - 50 peak hour critical movement trips for LOS E.
  - 50 peak hour critical movement trips for LOS F.

Potential Impacts and Mitigations

Intersections. The intersections of Clark Avenue with SR 135 (Northbound and Southbound Ramps) and Bradley Road are included in the CMP network. The analysis indicated that the intersections of Clark Avenue with SR 135 would operate at LOS C or better under existing plus project and cumulative plus project conditions. The analysis completed for the Clark Avenue/Bradley Road intersection contained in the traffic study for the *Rice Ranch Specific Plan*[7] indicates that the intersection also operates at LOS C or better under existing plus project and cumulative plus project conditions. These values are consistent with the CMP thresholds outlined previously.

Highways. The project would add 76 southbound AM PHT and 87 northbound PM PHT to SR 1 north of Clark Avenue, and 9 Northbound PHT and 8 Southbound PHT to SR 1 south of Clark Avenue. The traffic analysis and 2016 CMP monitoring report indicates that both segments of SR 1 operate in the LOS A/B range in during the peak hour.

The project would add 12 northbound AM PHT and 14 southbound pm PHT to SR 135 north of Clark Avenue. The 2016 CMP monitoring report indicates that the preferred method of operational measurement for SR 135 north of Clark Avenue is intersection LOS instead of roadway segment LOS.

Based on the CMP impact criteria (minimum of 100 peak hour trips in each direction at LOS D operations), the project would have less than a significantly impact on SR 1 and SR 135 operations.

■ ■ ■

[7] Rice Ranch Specific Plan, Revised Traffic and Circulation Study, Stantec, August 1, 2015.

TECHNICAL APPENDIX

TABLE OF CONTENTS

Appendix 1 – County Roadway Classifications and Level of Service Standards

Appendix 2 – AM and PM Peak Hour Intersection Counts

Appendix 3 – Cumulative Projects List

Appendix 4 – Intersection Level of Service Calculation Worksheets

- Existing and Existing + Project AM and PM Peak Hour
- Cumulative and Cumulative + Project AM and PM Peak Hour

Appendix 1

County Roadway Classifications and Levels of Service Standards

Roadway Classifications

Classification	Purpose and Design Factors	Design Capacity		LOS C Threshold[1]	
		2 Lane	4 Lane	2 Lane	4 Lane
Primary 1	Roadways designed to serve primarily non-residential development. Roadways would have a minimum of 12-foot wide lanes with shoulders and few curb cuts. Signals would be spaced at 1 mile or more intervals.	19,900	47,760	15,900	38,200
Primary 2	Roadways which serve a high proportion of non-residential development with some residential lots and few or no driveway curb cuts. Lane widths are a minimum of 12 feet with well spaced curb cuts. Signals intervals at a minimum of 1/2 mile.	17,900	42,480	14,300	34,000
Primary 3	Roadways designed to serve non-residential development and residential development. More frequent driveways are acceptable. Potential signal intervals of 1/2-1/4 mile.	15,700	37,680	12,500	30,100
Secondary 1	Roadways designed to primarily serve non-residential development and large lot residential development with well spaced driveways. Roadways would be 2 lanes with infrequent driveways. Signal would generally occur at intersections with primary roads.	11,600	NA	9,300	NA
Secondary 2	Roadways designed to serve residential and non-residential land uses. Roadways would be 2 lanes with close to moderately spaced driveways.	9,100	NA	7,300	NA
Secondary 3	Roadways designed to primarily serve residential with small to medium lots. Roadways are 2 lanes with more frequent driveways.	7,900	NA	6,300	NA

[1] Defined as 80% of Design Capacity.
Source: Santa Barbara County Public Works, Transportation Division.

Appendix 2

AM and PM Peak Hour Intersection Counts

Prepared by NDS/ATD

VOLUME

SR-1 W/O Solomon Rd

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,098	3,094	6,192

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		4		5		12:00			43		40		83	
00:15			2		2		4		12:15			42		55		97	
00:30			2		1		3		12:30			36		39		75	
00:45			4	9	5	12	9	21	12:45			33	154	47	181	80	335
01:00			1		1		2		13:00			54		55		109	
01:15			3		2		5		13:15			51		58		109	
01:30			0		2		2		13:30			49		49		98	
01:45			0	4	0	5	0	9	13:45			50	204	47	209	97	413
02:00			7		0		7		14:00			39		56		95	
02:15			6		1		7		14:15			53		62		115	
02:30			4		5		9		14:30			55		57		112	
02:45			2	19	3	9	5	28	14:45			63	210	63	238	126	448
03:00			10		3		13		15:00			71		56		127	
03:15			2		4		6		15:15			45		61		106	
03:30			3		2		5		15:30			75		71		146	
03:45			2	17	4	13	6	30	15:45			57	248	65	253	122	501
04:00			1		2		3		16:00			52		48		100	
04:15			4		7		11		16:15			77		48		125	
04:30			11		11		22		16:30			64		61		125	
04:45			5	21	12	32	17	53	16:45			74	267	64	221	138	488
05:00			16		7		23		17:00			63		59		122	
05:15			29		28		57		17:15			63		75		138	
05:30			27		25		52		17:30			73		55		128	
05:45			41	113	52	112	93	225	17:45			47	246	37	226	84	472
06:00			35		30		65		18:00			46		48		94	
06:15			55		75		130		18:15			43		34		77	
06:30			43		53		96		18:30			39		32		71	
06:45			60	193	67	225	127	418	18:45			44	172	35	149	79	321
07:00			77		51		128		19:00			41		47		88	
07:15			75		47		122		19:15			16		22		38	
07:30			76		73		149		19:30			23		29		52	
07:45			61	289	63	234	124	523	19:45			27	107	29	127	56	234
08:00			44		53		97		20:00			25		21		46	
08:15			35		48		83		20:15			20		13		33	
08:30			46		52		98		20:30			15		20		35	
08:45			39	164	46	199	85	363	20:45			16	76	10	64	26	140
09:00			39		41		80		21:00			15		21		36	
09:15			36		34		70		21:15			14		13		27	
09:30			49		34		83		21:30			11		14		25	
09:45			29	153	50	159	79	312	21:45			17	57	18	66	35	123
10:00			29		39		68		22:00			5		10		15	
10:15			36		25		61		22:15			6		8		14	
10:30			39		49		88		22:30			9		8		17	
10:45			36	140	35	148	71	288	22:45			9	29	7	33	16	62
11:00			58		38		96		23:00			9		10		19	
11:15			42		27		69		23:15			3		7		10	
11:30			54		38		92		23:30			2		5		7	
11:45			34	188	50	153	84	341	23:45			4	18	4	26	8	44
TOTALS				1310		1301		**2611**	**TOTALS**				1788		1793		**3581**
SPLIT %				50.2%		49.8%		**42.2%**	**SPLIT %**				49.9%		50.1%		**57.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,098	3,094	6,192

AM Peak Hour			07:00	06:15	**06:45**	**PM Peak Hour**			16:15	16:30	**16:45**
AM Pk Volume			289	246	**526**	**PM Pk Volume**			278	259	**526**
Pk Hr Factor			0.938	0.820	**0.883**	**Pk Hr Factor**			0.903	0.863	**0.953**
7 - 9 Volume	0	0	453	433	**886**	**4 - 6 Volume**	0	0	513	447	**960**
7 - 9 Peak Hour			07:00	07:30	**07:00**	**4 - 6 Peak Hour**			16:15	16:30	**16:45**
7 - 9 Pk Volume	0	0	289	237	**523**	**4 - 6 Pk Volume**	0	0	278	259	**526**
Pk Hr Factor	0.000	0.000	0.938	0.812	**0.878**	**Pk Hr Factor**	0.000	0.000	0.903	0.863	**0.953**

Prepared by NDS/ATD

VOLUME

SR-1 N/O Clark Ave

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_002

DAILY TOTALS	NB	SB	EB	WB	Total
	2,471	2,334	0	0	4,805

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	4		1						5		12:00	40		32						72	
00:15	2		2						4		12:15	43		34						77	
00:30	1		2						3		12:30	34		27						61	
00:45	5	12	4	9					9	21	12:45	39	156	22	115					61	271
01:00	0		1						1		13:00	51		42						93	
01:15	2		2						4		13:15	54		38						92	
01:30	2		1						3		13:30	39		36						75	
01:45	1	5	0	4					1	9	13:45	36	180	38	154					74	334
02:00	0		5						5		14:00	44		30						74	
02:15	1		5						6		14:15	46		41						87	
02:30	5		1						6		14:30	51		36						87	
02:45	2	8	2	13					4	21	14:45	52	193	40	147					92	340
03:00	1		8						9		15:00	40		49						89	
03:15	3		2						5		15:15	48		36						84	
03:30	0		3						3		15:30	61		47						108	
03:45	5	9	2	15					7	24	15:45	54	203	43	175					97	378
04:00	3		1						4		16:00	45		37						82	
04:15	6		4						10		16:15	42		55						97	
04:30	7		8						15		16:30	51		51						102	
04:45	13	29	8	21					21	50	16:45	63	201	60	203					123	404
05:00	4		14						18		17:00	47		42						89	
05:15	20		23						43		17:15	63		46						109	
05:30	17		23						40		17:30	46		56						102	
05:45	21	62	37	97					58	159	17:45	34	190	32	176					66	366
06:00	25		31						56		18:00	42		32						74	
06:15	54		49						103		18:15	30		25						55	
06:30	42		41						83		18:30	26		28						54	
06:45	44	165	36	157					80	322	18:45	32	130	30	115					62	245
07:00	35		53						88		19:00	33		28						61	
07:15	28		44						72		19:15	11		15						26	
07:30	52		57						109		19:30	26		22						48	
07:45	37	152	46	200					83	352	19:45	19	89	15	80					34	169
08:00	39		39						78		20:00	21		18						39	
08:15	36		19						55		20:15	10		12						22	
08:30	46		39						85		20:30	13		10						23	
08:45	29	150	31	128					60	278	20:45	7	51	12	52					19	103
09:00	31		34						65		21:00	19		8						27	
09:15	31		30						61		21:15	8		9						17	
09:30	29		39						68		21:30	10		12						22	
09:45	46	137	22	125					68	262	21:45	16	53	12	41					28	94
10:00	32		24						56		22:00	3		8						11	
10:15	30		27						57		22:15	7		4						11	
10:30	37		33						70		22:30	9		10						19	
10:45	26	125	34	118					60	243	22:45	5	24	6	28					11	52
11:00	33		44						77		23:00	7		6						13	
11:15	24		33						57		23:15	2		2						4	
11:30	30		44						74		23:30	4		1						5	
11:45	41	128	27	148					68	276	23:45	6	19	4	13					10	32
TOTALS		982		1035						2017	TOTALS		1489		1299						2788
SPLIT %		48.7%		51.3%						42.0%	SPLIT %		53.4%		46.6%						58.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	2,471	2,334	0	0	4,805

AM Peak Hour	06:15	07:00			06:15	PM Peak Hour	16:30	16:15			16:30
AM Pk Volume	175	200			354	PM Pk Volume	224	208			423
Pk Hr Factor	0.810	0.877			0.859	Pk Hr Factor	0.889	0.867			0.860
7 - 9 Volume	302	328	0	0	630	4 - 6 Volume	391	379	0	0	770
7 - 9 Peak Hour	07:30	07:00			07:00	4 - 6 Peak Hour	16:30	16:15			16:30
7 - 9 Pk Volume	164	200	0	0	352	4 - 6 Pk Volume	224	208	0	0	423
Pk Hr Factor	0.788	0.877	0.000	0.000	0.807	Pk Hr Factor	0.889	0.867	0.000	0.000	0.860

Prepared by NDS/ATD

VOLUME

Solomon Rd S/O SR-1

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_003

DAILY TOTALS	NB	SB	EB	WB	Total
	869	760	0	0	1,629

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	12		7						19	
00:15	0		0						0		12:15	9		10						19	
00:30	0		0						0		12:30	9		8						17	
00:45	0		0						0		12:45	8	38	11	36					19	74
01:00	0		0						0		13:00	15		7						22	
01:15	0		0						0		13:15	22		8						30	
01:30	0		1						1		13:30	10		8						18	
01:45	1	1	0	1					1	2	13:45	14	61	11	34					25	95
02:00	1		0						1		14:00	14		24						38	
02:15	0		0						0		14:15	18		16						34	
02:30	2		0						2		14:30	18		9						27	
02:45	0	3	1	1					1	4	14:45	26	76	13	62					39	138
03:00	0		1						1		15:00	27		15						42	
03:15	0		1						1		15:15	11		12						23	
03:30	0		2						2		15:30	21		14						35	
03:45	0		0	4					0	4	15:45	23	82	14	55					37	137
04:00	0		0						0		16:00	17		6						23	
04:15	0		0						0		16:15	22		10						32	
04:30	0		4						4		16:30	18		12						30	
04:45	0		0	4					0	4	16:45	19	76	8	36					27	112
05:00	2		2						4		17:00	27		18						45	
05:15	5		8						13		17:15	16		15						31	
05:30	3		15						18		17:30	23		10						33	
05:45	6	16	32	57					38	73	17:45	14	80	5	48					19	128
06:00	2		11						13		18:00	16		9						25	
06:15	10		22						32		18:15	21		8						29	
06:30	6		15						21		18:30	10		6						16	
06:45	19	37	21	69					40	106	18:45	16	63	5	28					21	91
07:00	29		18						47		19:00	12		10						22	
07:15	35		21						56		19:15	4		12						16	
07:30	23		27						50		19:30	4		9						13	
07:45	8	95	24	90					32	185	19:45	9	29	10	41					19	70
08:00	13		13						26		20:00	10		4						14	
08:15	17		15						32		20:15	9		4						13	
08:30	9		15						24		20:30	7		7						14	
08:45	8	47	19	62					27	109	20:45	6	32	4	19					10	51
09:00	6		11						17		21:00	7		6						13	
09:15	13		9						22		21:15	5		4						9	
09:30	15		7						22		21:30	2		6						8	
09:45	7	41	5	32					12	73	21:45	3	17	2	18					5	35
10:00	5		7						12		22:00	1		1						2	
10:15	8		3						11		22:15	2		1						3	
10:30	5		10						15		22:30	0		2						2	
10:45	8	26	6	26					14	52	22:45	3	6	1	5					4	11
11:00	10		5						15		23:00	0		2						2	
11:15	13		7						20		23:15	2		0						2	
11:30	5		8						13		23:30	1		1						2	
11:45	10	38	8	28					18	66	23:45	2	5	1	4					3	9
TOTALS		304		374						**678**	**TOTALS**		565		386						**951**
SPLIT %		44.8%		55.2%						**41.6%**	**SPLIT %**		59.4%		40.6%						**58.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	869	760	0	0	1,629

AM Peak Hour	06:45	07:00			**06:45**	**PM Peak Hour**	14:15	14:00			**14:15**
AM Pk Volume	106	90			**193**	**PM Pk Volume**	89	62			**142**
Pk Hr Factor	0.757	0.833			**0.862**	**Pk Hr Factor**	0.824	0.646			**0.845**
7 - 9 Volume	142	152	0	0	**294**	**4 - 6 Volume**	156	84	0	0	**240**
7 - 9 Peak Hour	07:00	07:00			**07:00**	**4 - 6 Peak Hour**	16:15	16:30			**16:45**
7 - 9 Pk Volume	95	90	0	0	**185**	**4 - 6 Pk Volume**	86	53	0	0	**136**
Pk Hr Factor	0.679	0.833	0.000	0.000	**0.826**	**Pk Hr Factor**	0.796	0.736	0.000	0.000	**0.756**

Prepared by NDS/ATD

VOLUME

Clark Ave Bet. Marcum St & 1st St

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,384	2,459	4,843

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		2		8		12:00			30		33		63	
00:15			2		2		4		12:15			37		37		74	
00:30			1		2		3		12:30			34		44		78	
00:45			2	11	4	10	6	21	12:45			35	136	35	149	70	285
01:00			3		0		3		13:00			36		56		92	
01:15			0		0		0		13:15			48		55		103	
01:30			0		5		5		13:30			32		34		66	
01:45			1	4	1	6	2	10	13:45			39	155	41	186	80	341
02:00			1		0		1		14:00			43		44		87	
02:15			0		0		0		14:15			57		51		108	
02:30			1		1		2		14:30			38		56		94	
02:45			0	2	0	1	0	3	14:45			42	180	33	184	75	364
03:00			0		1		1		15:00			48		41		89	
03:15			2		1		3		15:15			45		47		92	
03:30			0		1		1		15:30			52		46		98	
03:45			0	2	1	4	1	6	15:45			52	197	58	192	110	389
04:00			0		1		1		16:00			56		42		98	
04:15			1		3		4		16:15			58		44		102	
04:30			4		5		9		16:30			51		43		94	
04:45			7	12	5	14	12	26	16:45			88	253	61	190	149	443
05:00			4		3		7		17:00			65		52		117	
05:15			10		13		23		17:15			57		42		99	
05:30			6		16		22		17:30			53		44		97	
05:45			22	42	15	47	37	89	17:45			43	218	43	181	86	399
06:00			11		22		33		18:00			34		45		79	
06:15			27		31		58		18:15			31		31		62	
06:30			15		36		51		18:30			29		31		60	
06:45			24	77	33	122	57	199	18:45			39	133	29	136	68	269
07:00			23		41		64		19:00			24		38		62	
07:15			28		39		67		19:15			31		25		56	
07:30			54		44		98		19:30			22		32		54	
07:45			60	165	49	173	109	338	19:45			23	100	25	120	48	220
08:00			31		44		75		20:00			20		37		57	
08:15			25		30		55		20:15			34		22		56	
08:30			33		27		60		20:30			19		24		43	
08:45			26	115	31	132	57	247	20:45			16	89	20	103	36	192
09:00			22		43		65		21:00			18		31		49	
09:15			24		26		50		21:15			17		12		29	
09:30			44		23		67		21:30			8		22		30	
09:45			31	121	35	127	66	248	21:45			11	54	11	76	22	130
10:00			32		19		51		22:00			6		9		15	
10:15			21		34		55		22:15			7		7		14	
10:30			31		32		63		22:30			5		8		13	
10:45			32	116	31	116	63	232	22:45			4	22	6	30	10	52
11:00			40		34		74		23:00			3		6		9	
11:15			46		27		73		23:15			4		4		8	
11:30			36		34		70		23:30			2		6		8	
11:45			46	168	42	137	88	305	23:45			3	12	7	23	10	35
TOTALS				835		889		1724	TOTALS				1549		1570		3119
SPLIT %				48.4%		51.6%		35.6%	SPLIT %				49.7%		50.3%		64.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,384	2,459	4,843

AM Peak Hour			07:15	07:15	07:15	PM Peak Hour			16:45	16:15	16:15
AM Pk Volume			173	176	349	PM Pk Volume			263	200	462
Pk Hr Factor			0.721	0.898	0.800	Pk Hr Factor			0.747	0.820	0.775
7 - 9 Volume	0	0	280	305	585	4 - 6 Volume	0	0	471	371	842
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			16:45	16:15	16:15
7 - 9 Pk Volume	0	0	173	176	349	4 - 6 Pk Volume	0	0	263	200	462
Pk Hr Factor	0.000	0.000	0.721	0.898	0.800	Pk Hr Factor	0.000	0.000	0.747	0.820	0.775

Prepared by NDS/ATD

VOLUME

Clark Ave W/O Foxenwood Ln

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,881	6,758	13,639

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		9		15		12:00			112		100		212	
00:15			3		8		11		12:15			100		95		195	
00:30			1		5		6		12:30			125		124		249	
00:45			3	13	3	25	6	38	12:45			136	473	116	435	252	908
01:00			4		1		5		13:00			111		122		233	
01:15			2		1		3		13:15			130		111		241	
01:30			1		5		6		13:30			106		101		207	
01:45			5	12	1	8	6	20	13:45			99	446	121	455	220	901
02:00			3		2		5		14:00			102		169		271	
02:15			2		2		4		14:15			324		151		475	
02:30			1		3		4		14:30			140		117		257	
02:45			2	8	2	9	4	17	14:45			122	688	121	558	243	1246
03:00			1		2		3		15:00			122		151		273	
03:15			1		3		4		15:15			223		175		398	
03:30			0		1		1		15:30			172		148		320	
03:45			1	3	2	8	3	11	15:45			150	667	146	620	296	1287
04:00			1		0		1		16:00			130		133		263	
04:15			3		2		5		16:15			121		134		255	
04:30			10		3		13		16:30			135		117		252	
04:45			12	26	4	9	16	35	16:45			120	506	156	540	276	1046
05:00			8		5		13		17:00			146		146		292	
05:15			15		11		26		17:15			107		150		257	
05:30			15		14		29		17:30			123		133		256	
05:45			36	74	18	48	54	122	17:45			103	479	120	549	223	1028
06:00			31		22		53		18:00			97		100		197	
06:15			32		31		63		18:15			79		108		187	
06:30			50		43		93		18:30			70		122		192	
06:45			67	180	58	154	125	334	18:45			83	329	117	447	200	776
07:00			56		48		104		19:00			117		86		203	
07:15			101		95		196		19:15			80		78		158	
07:30			169		236		405		19:30			59		70		129	
07:45			215	541	151	530	366	1071	19:45			55	311	62	296	117	607
08:00			77		109		186		20:00			59		67		126	
08:15			85		85		170		20:15			110		44		154	
08:30			91		103		194		20:30			82		49		131	
08:45			63	316	77	374	140	690	20:45			78	329	45	205	123	534
09:00			59		88		147		21:00			68		50		118	
09:15			85		72		157		21:15			39		39		78	
09:30			118		123		241		21:30			35		38		73	
09:45			186	448	166	449	352	897	21:45			26	168	23	150	49	318
10:00			79		91		170		22:00			27		20		47	
10:15			85		69		154		22:15			16		16		32	
10:30			69		89		158		22:30			11		18		29	
10:45			95	328	97	346	192	674	22:45			17	71	15	69	32	140
11:00			118		97		215		23:00			7		14		21	
11:15			90		108		198		23:15			6		10		16	
11:30			129		117		246		23:30			5		10		15	
11:45			97	434	108	430	205	864	23:45			13	31	10	44	23	75
TOTALS				2383		2390		4773	TOTALS				4498		4368		8866
SPLIT %				49.9%		50.1%		35.0%	SPLIT %				50.7%		49.3%		65.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,881	6,758	13,639

AM Peak Hour			07:15	07:15	07:15	PM Peak Hour			14:15	15:00	15:00
AM Pk Volume			562	591	1153	PM Pk Volume			708	620	1287
Pk Hr Factor			0.653	0.626	0.712	Pk Hr Factor			0.546	0.886	0.808
7 - 9 Volume	0	0	857	904	1761	4 - 6 Volume	0	0	985	1089	2074
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			16:15	16:45	16:45
7 - 9 Pk Volume	0	0	562	591	1153	4 - 6 Pk Volume	0	0	522	585	1081
Pk Hr Factor	0.000	0.000	0.653	0.626	0.712	Pk Hr Factor	0.000	0.000	0.894	0.938	0.926

Prepared by NDS/ATD

VOLUME

Clark Ave E/O Orcutt Rd

Day: Wednesday
Date: 5/23/2018

City: Orcutt
Project #: CA18_2064_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,188	7,695	14,883

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			14		13		27		12:00			118		101		219	
00:15			5		10		15		12:15			122		119		241	
00:30			3		5		8		12:30			123		150		273	
00:45			7	29	2	30	9	59	12:45			127	490	125	495	252	985
01:00			7		2		9		13:00			131		158		289	
01:15			7		7		14		13:15			139		131		270	
01:30			2		11		13		13:30			129		118		247	
01:45			4	20	3	23	7	43	13:45			103	502	130	537	233	1039
02:00			4		2		6		14:00			115		152		267	
02:15			3		3		6		14:15			207		142		349	
02:30			8		3		11		14:30			131		153		284	
02:45			3	18	2	10	5	28	14:45			124	577	122	569	246	1146
03:00			0		1		1		15:00			135		134		269	
03:15			1		5		6		15:15			167		169		336	
03:30			1		3		4		15:30			183		143		326	
03:45			2	4	6	15	8	19	15:45			174	659	135	581	309	1240
04:00			1		3		4		16:00			134		141		275	
04:15			4		5		9		16:15			134		154		288	
04:30			10		12		22		16:30			147		149		296	
04:45			22	37	13	33	35	70	16:45			154	569	190	634	344	1203
05:00			13		22		35		17:00			148		129		277	
05:15			19		35		54		17:15			143		143		286	
05:30			28		35		63		17:30			137		121		258	
05:45			51	111	56	148	107	259	17:45			127	555	104	497	231	1052
06:00			45		69		114		18:00			105		114		219	
06:15			74		75		149		18:15			109		124		233	
06:30			66		88		154		18:30			91		111		202	
06:45			60	245	113	345	173	590	18:45			106	411	99	448	205	859
07:00			72		100		172		19:00			112		76		188	
07:15			84		114		198		19:15			97		89		186	
07:30			130		194		324		19:30			72		78		150	
07:45			162	448	200	608	362	1056	19:45			80	361	74	317	154	678
08:00			88		125		213		20:00			58		82		140	
08:15			113		106		219		20:15			89		59		148	
08:30			101		116		217		20:30			78		54		132	
08:45			76	378	101	448	177	826	20:45			74	299	61	256	135	555
09:00			71		93		164		21:00			55		72		127	
09:15			84		105		189		21:15			39		50		89	
09:30			90		118		208		21:30			35		49		84	
09:45			136	381	125	441	261	822	21:45			32	161	34	205	66	366
10:00			72		111		183		22:00			33		24		57	
10:15			85		90		175		22:15			25		22		47	
10:30			87		106		193		22:30			15		30		45	
10:45			95	339	119	426	214	765	22:45			23	96	21	97	44	193
11:00			114		117		231		23:00			14		21		35	
11:15			94		112		206		23:15			14		17		31	
11:30			136		109		245		23:30			10		13		23	
11:45			102	446	131	469	233	915	23:45			14	52	12	63	26	115
TOTALS				2456		2996		5452	TOTALS				4732		4699		9431
SPLIT %				45.0%		55.0%		36.6%	SPLIT %				50.2%		49.8%		63.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,188	7,695	14,883

AM Peak Hour			07:30	07:15	07:30	PM Peak Hour			15:00	16:00	15:15
AM Pk Volume			493	633	1118	PM Pk Volume			659	634	1246
Pk Hr Factor			0.761	0.791	0.772	Pk Hr Factor			0.900	0.834	0.927
7 - 9 Volume	0	0	826	1056	1882	4 - 6 Volume	0	0	1124	1131	2255
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour			16:30	16:00	16:15
7 - 9 Pk Volume	0	0	493	633	1118	4 - 6 Pk Volume	0	0	592	634	1205
Pk Hr Factor	0.000	0.000	0.761	0.791	0.772	Pk Hr Factor	0.000	0.000	0.961	0.834	0.876

Prepared by National Data & Surveying Services

Black Rd & SR-1

Peak Hour Turning Movement Count

ID: 18-02065-001
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Black Rd — SOUTHBOUND

AM	21	15	114	0	126	AM
NOON	0	0	0	0	0	NOON
PM	24	28	134	0	222	PM
	0	1	1	0		

SR-1 — EASTBOUND

AM	NOON	PM		
106	0	148		
0	0	0	0	
17	0	92	1	
160	0	117	1	
2	0	9	0	
AM	NOON	PM		

SR-1 — WESTBOUND

PM	NOON	AM	
109	0	95	0.5
118	0	82	0.5
12	0	21	1
0	0	0	0
265	0	286	
PM	NOON	AM	

CONTROL

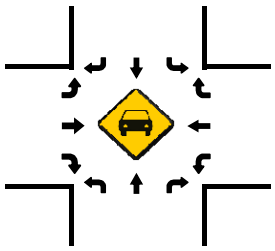
4-Way Stop

TEV	556	0	684
	AM	NOON	PM
PHF	0.93		0.95

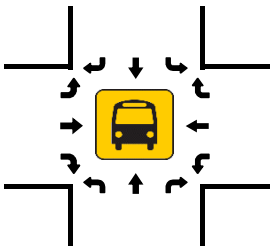
Black Rd — NORTHBOUND

PM	49	0	6	21	14	PM
NOON	0	0	0	0	0	NOON
AM	38	0	3	14	12	AM
		0	1	1	1	

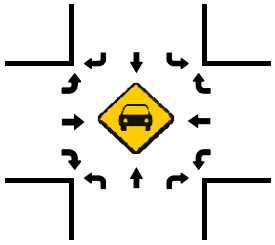
Total Vehicles (AM)



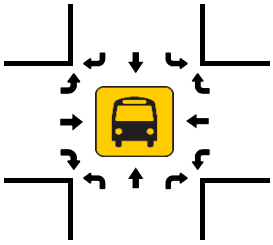
Total Vehicles (AM)



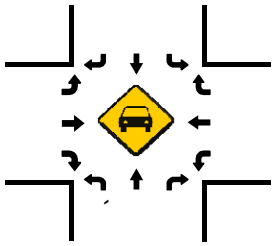
Total Vehicles (NOON)



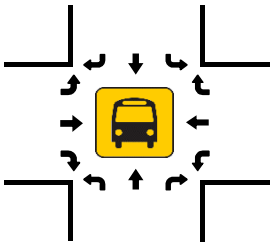
Total Vehicles (NOON)



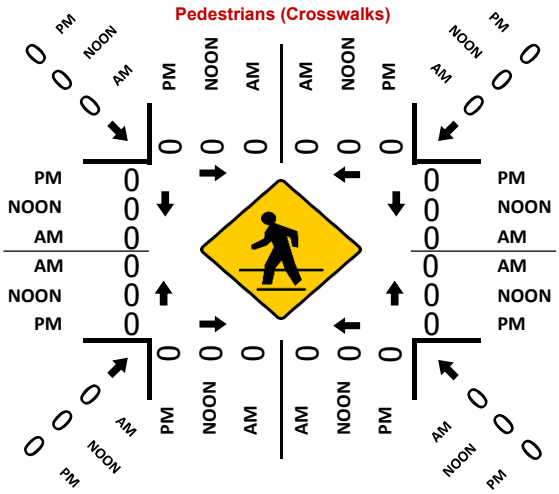
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Solomon Rd & SR-1

Peak Hour Turning Movement Count

ID: 18-02065-002
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Solomon Rd)

AM	82	2	8	0	94	AM
NOON	0	0	0	0	0	NOON
PM	42	4	4	0	86	PM

EASTBOUND (SR-1)

AM	NOON	PM	
226	0	245	⇦
0	0	0	0
87	0	78	1
190	0	186	1
0	0	2	0
AM	NOON	PM	

WESTBOUND (SR-1)

	PM	NOON	AM
0	7	0	5
1	201	0	142
1	0	0	1
0	0	0	0
⇨	191	0	198
	PM	NOON	AM

NORTHBOUND (Solomon Rd)

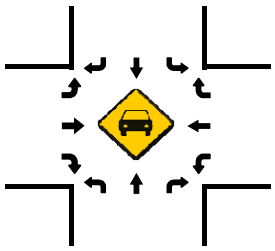
PM	6	0	2	1	1	PM
NOON	0	0	0	0	0	NOON
AM	3	0	2	2	0	AM

Turning movements (SB): 0 1 0 0

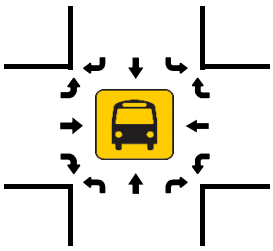
Turning movements (NB): 0 0 1 0

CONTROL			
1-Way Stop(SB)			
TEV	521	0	528
	AM	NOON	PM
PHF	0.88		0.95

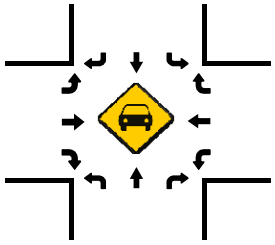
Total Vehicles (AM)



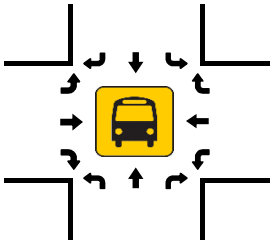
Total Vehicles (AM)



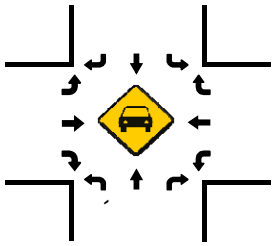
Total Vehicles (NOON)



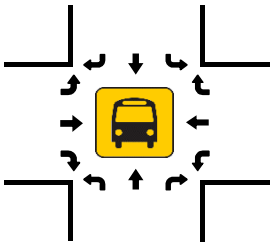
Total Vehicles (NOON)



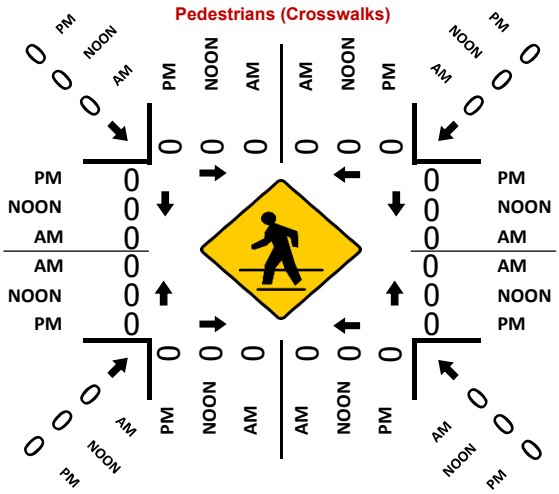
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

SR-1 & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-003
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND (SR-1)

AM	0	116	77	0	149	AM
NOON	0	0	0	0	0	NOON
PM	0	82	107	0	213	PM

EASTBOUND (Clark Ave)

AM	NOON	PM		
0	0	1		
0	0	0	0	
0	0	0	0	
3	0	2	0.5	
0	0	0	0.5	
AM	NOON	PM		

WESTBOUND (Clark Ave)

PM	NOON	AM	
84	0	88	0.5
1	0	0	0.5
33	0	60	0
0	0	0	0
180	0	96	
PM	NOON	AM	

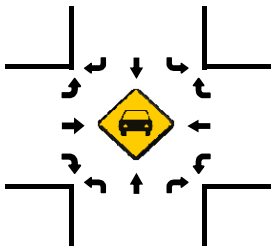
NORTHBOUND (SR-1)

PM	115	0	0	129	71	PM
NOON	0	0	0	0	0	NOON
AM	176	0	0	61	16	AM

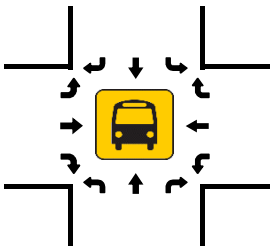
Turning movements (0 / 1 / 1 / 0):

CONTROL			
2-Way Stop(EB/WB)			
TEV	421	0	509
	AM	NOON	PM
PHF	0.86		0.93

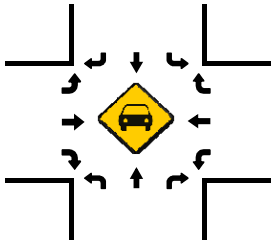
Total Vehicles (AM)



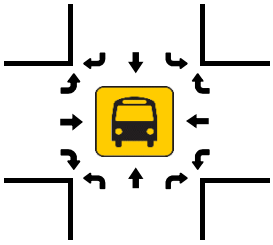
Total Vehicles (AM)



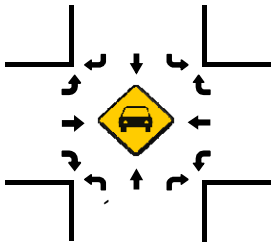
Total Vehicles (NOON)



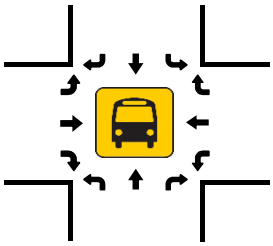
Total Vehicles (NOON)



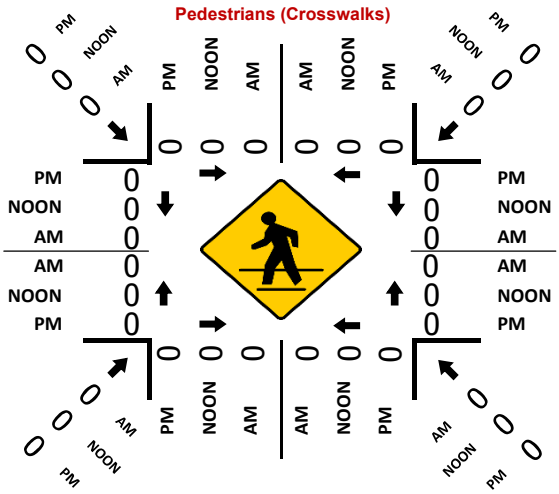
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Broadway St & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-004
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Broadway St — SOUTHBOUND

AM	31	65	71	0	81	AM
NOON	0	0	0	0	0	NOON
PM	26	69	48	0	146	PM

Clark Ave — EASTBOUND

AM	NOON	PM	
178	0	202	⇦
0	0	0	0
8	0	37	1
119	0	160	1
39	0	61	0
AM	NOON	PM	

Clark Ave — WESTBOUND

PM	NOON	AM	
58	0	30	0
122	0	88	1
56	0	20	1
0	0	0	0
260	0	208	⇨
PM	NOON	AM	

Broadway St — NORTHBOUND

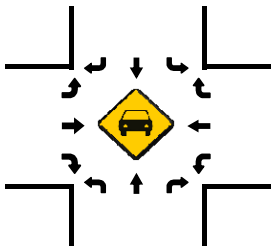
PM	186	0	54	51	52	PM
NOON	0	0	0	0	0	NOON
AM	124	0	59	43	18	AM

Turning movements (red): 0 1 0 0 (SB); 0 0 1 0 (NB)

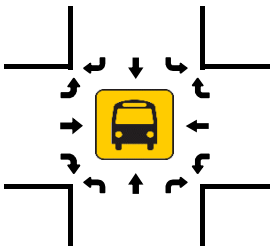
CONTROL: 4-Way Stop

TEV	591	0	794
	AM	NOON	PM
PHF	0.77		0.87

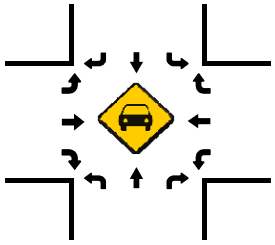
Total Vehicles (AM)



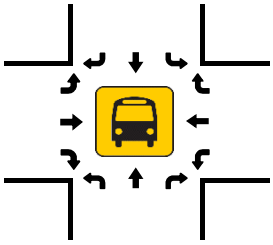
Total Vehicles (AM)



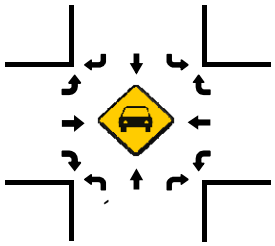
Total Vehicles (NOON)



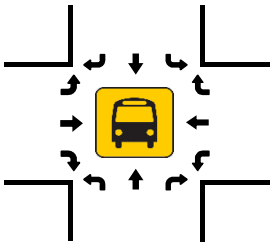
Total Vehicles (NOON)



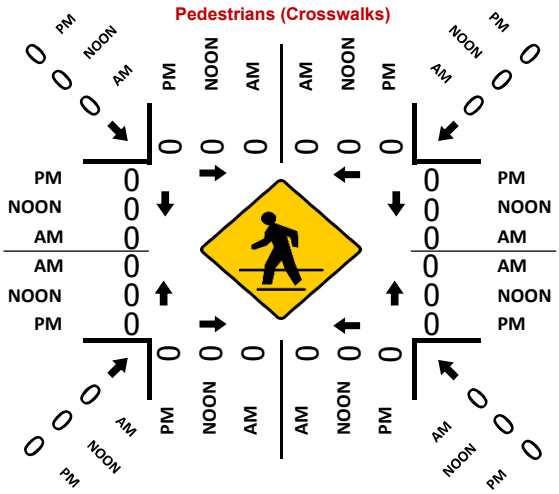
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Foxenwood Ln & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-005
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Foxenwood Ln — SOUTHBOUND

AM	44	0	53	0	92	AM
NOON	0	0	0	0	0	NOON
PM	28	0	43	0	99	PM
	0	1	0	0		

Clark Ave — EASTBOUND

AM	NOON	PM	
584	0	574	
0	0	0	0
36	0	21	0
511	0	451	2
0	0	0	0
AM	NOON	PM	

Clark Ave — WESTBOUND

	PM	NOON	AM
0	78	0	56
2	546	0	540
0	0	0	0
0	1	0	0
	495	0	564
	PM	NOON	AM

CONTROL

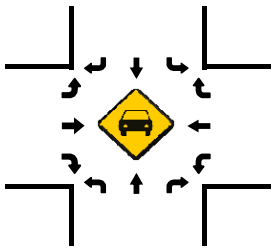
1-Way Stop(SB)

	AM	NOON	PM
TEV	1240	0	1168
PHF	0.74		0.94

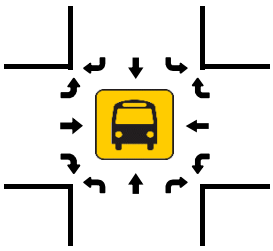
Foxenwood Ln — NORTHBOUND

	0	0	0	0	
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

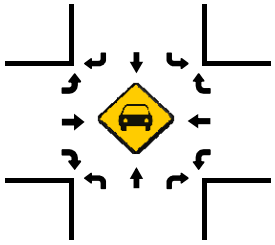
Total Vehicles (AM)



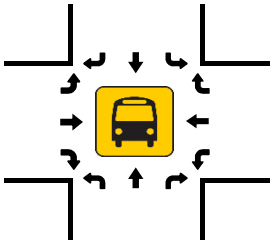
Total Vehicles (AM)



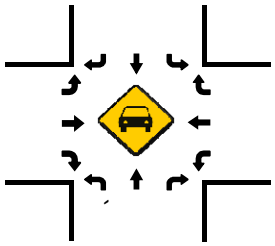
Total Vehicles (NOON)



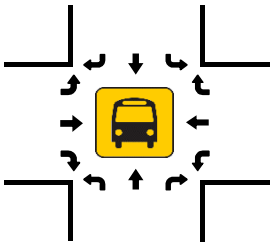
Total Vehicles (NOON)



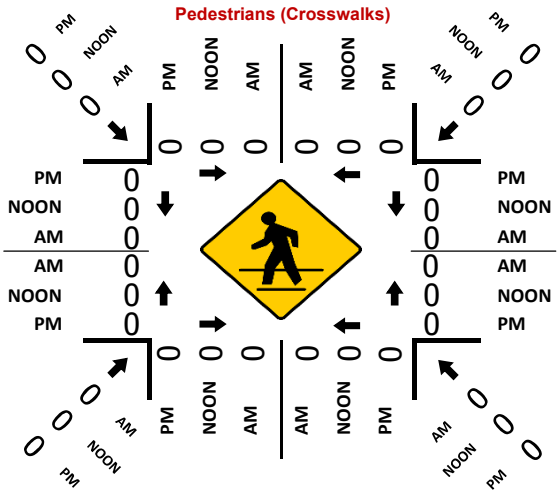
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

SR-135 SB Ramps & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-006
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SR-135 SB Ramps — SOUTHBOUND

AM	238	1	132	0	0	AM
NOON	0	0	0	0	0	NOON
PM	218	1	268	0	0	PM
	1	0.5	0.5	0		

Clark Ave — EASTBOUND

AM	NOON	PM	
596	0	615	
0	0	0	0
0	0	0	0
527	0	478	2
32	0	11	0

CONTROL

Signalized

	AM	NOON	PM
TEV	1476	0	1475
PHF	0.77		0.96

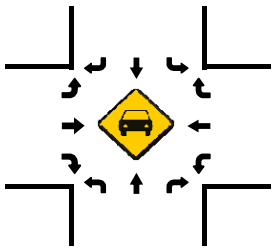
Clark Ave — WESTBOUND

PM	NOON	AM	
0	0	0	0
397	0	358	2
102	0	188	1
0	0	0	0
746	0	659	

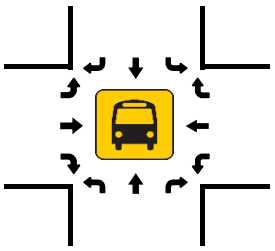
SR-135 SB Ramps — NORTHBOUND

	0	0	0	0		
PM	114	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	221	0	0	0	0	AM

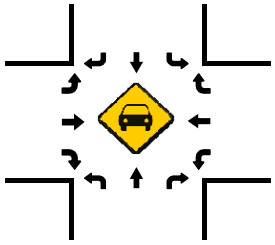
Total Vehicles (AM)



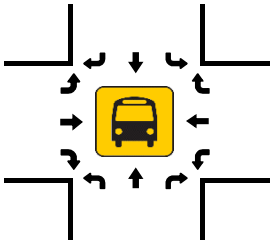
Total Vehicles (AM)



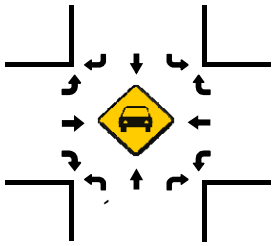
Total Vehicles (NOON)



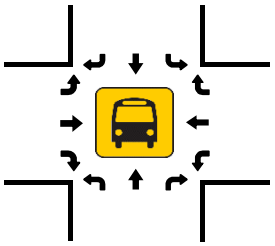
Total Vehicles (NOON)



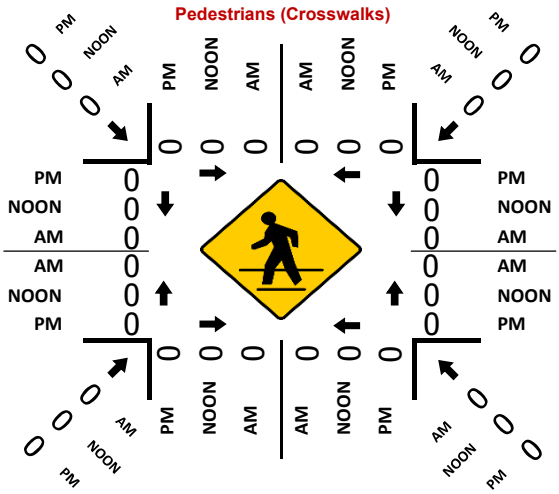
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

SR-135 NB Ramps & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-007
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND — SR-135 NB Ramps

AM	0	0	0	0	452	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	327	PM

EASTBOUND — Clark Ave

AM	NOON	PM	
547	0	487	⇦
0	0	0	0
157	0	135	1
510	0	607	2
0	0	0	0
AM	NOON	PM	

WESTBOUND — Clark Ave

PM	NOON	AM	
192	0	294	0
470	0	542	2
0	0	0	0
0	0	0	0
819	0	583	⇨
PM	NOON	AM	

NORTHBOUND — SR-135 NB Ramps

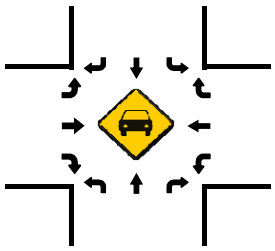
PM	0	0	17	0	212	PM
NOON	0	0	0	0	0	NOON
AM	0	0	5	1	73	AM

0	0	0	0	
0	0.5	1	0.5	

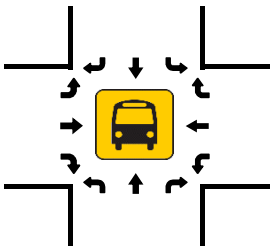
CONTROL: Signalized

	AM	NOON	PM
TEV	1582	0	1633
PHF	0.76		0.97

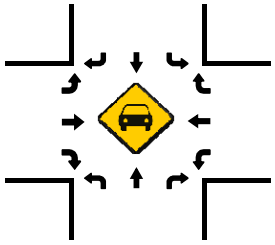
Total Vehicles (AM)



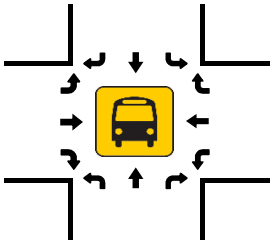
Total Vehicles (AM)



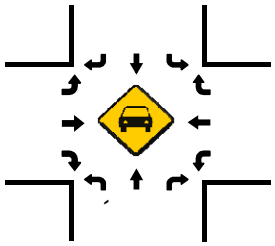
Total Vehicles (NOON)



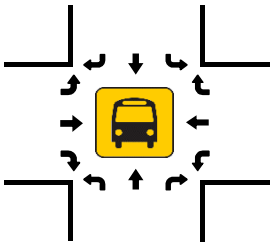
Total Vehicles (NOON)



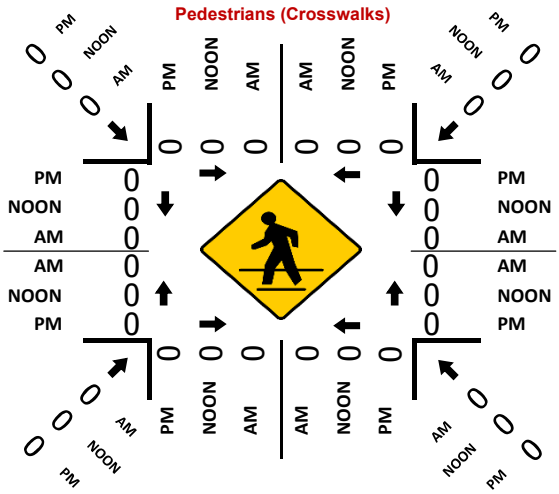
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Orcutt Rd & Clark Ave

Peak Hour Turning Movement Count

ID: 18-02065-008
City: Orcutt

Day: Wednesday
Date: 05/23/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Orcutt Rd)

AM	71	28	12	0	166	AM
NOON	0	0	0	0	0	NOON
PM	31	53	13	0	115	PM
	0	1	0	0		

EASTBOUND (Clark Ave)

AM	NOON	PM	
841	0	663	
0	0	0	0
84	0	62	1
394	0	537	2
104	0	220	0

WESTBOUND (Clark Ave)

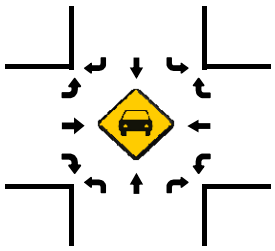
	PM	NOON	AM
0	14	0	17
2	502	0	582
1	80	0	33
0	2	0	0
	583	0	472

NORTHBOUND (Orcutt Rd)

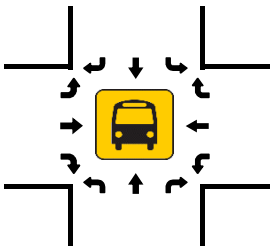
PM	353	0	130	39	31	PM
NOON	0	0	0	0	0	NOON
AM	165	0	188	65	66	AM
		0	1	0.5	0.5	

CONTROL			
Signalized			
TEV	1644	0	1714
	AM	NOON	PM
PHF	0.76		0.96

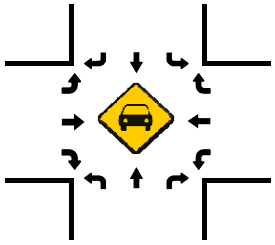
Total Vehicles (AM)



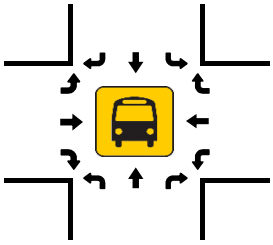
Total Vehicles (AM)



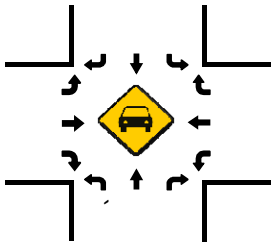
Total Vehicles (NOON)



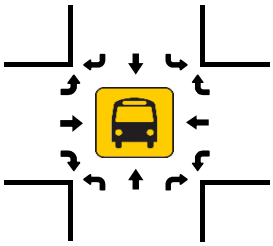
Total Vehicles (NOON)



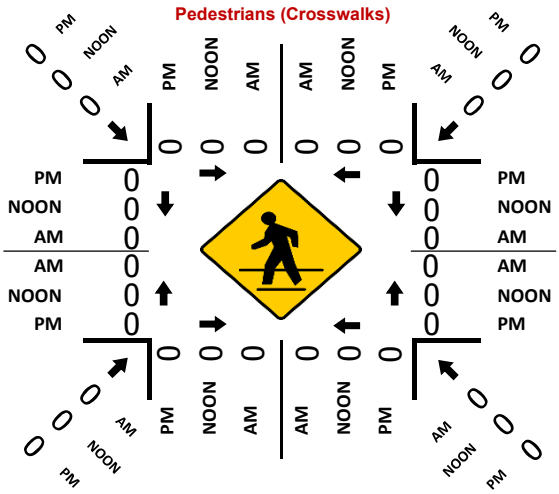
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Appendix 3
Cumulative Projects List

San Antonio Creek Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process	8	5,600	0	0
Approved	0	0	0	0
Under Construction				
Built				
Totals	***8***	***5,600***	***0***	***0***

Santa Maria Valley

Not within a Community/Specific Plan Area

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Ag Development (excluding wineries)	06DVP-00000-00009 E. Briggs	OSR ENTERPRISES/NRG ENTERPRISES LP 128-096-001 128-096-004 128-096-005	Approved	0	0	0	237,636	0
Institutional (schools, churches, etc)	07GPA-00000-00011 J. Karamitsos	NORTH COUNTY JAIL GENERAL PLAN AMENDMENT 113-210-004 113-210-013	Approved	0	0	0	0	250465
Ag Development (excluding wineries)	08DVP-00000-00007 D. Eady	PLANTEL NURSERIES 129-170-004	Built	0	0	0	972,720	0
Parcel Map	08TPM-00000-00003 J. Gerber	OVERHOLTZER LOT SPLIT (TPM 14,744) 129-020-027	Approved	2	0	0	0	0
Wineries	11DVP-00000-00013 J. Zorovich	SIERRA MADRE RANCH WINERY 129-010-007	Approved		10,602			

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Not within a Community/Specific Plan Area

continued ...

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Oil and Gas	12DVP-00000-00005 E. Briggs	ERG OIL & GAS PIPELINE DEVELOPMENT PLAN 129-080-006 129-080-007 129-090-016 129-090-021 129-090-032 129-090-033 129-090-037 129-090-038 129-100-014 129-100-015 129-100-025 129-100-034 129-100-035 129-100-036 129-180-007 129-180-008 129-180-013 129-180-015	In Process					2.9 Mile Oil Pipeline
Ag Development (excluding wineries)	15CUP-00000-00011 N. Campbell	CURLETTI FARM EMPLOYE HOUSING 113-240-009	Approved				50,000	
Oil and Gas	15PPP-00000-00001 K. Lehr	EAST CAT CANYON OIL FIELD REDEVELOPMENT 101-040-005	Proposed					

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For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Not within a Community/Specific Plan Area

continued ...

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Oil and Gas	15PPP-00000-00002 J. Dargel	UCCB PRODUCTION PLAN 101-030-011 101-040-026 129-180-018 129-180-037 129-180-038	Proposed					
Oil and Gas	15TRM-00000-00003 K. Lehr	EAST CAT CANYON OIL FIELD REDEVELOPMENT (TRM 14,813) 101-040-005	Proposed					
Oil and Gas	16AMD-00000-00009 K. Lehr	ROCK ENERGY OIL & GAS PRODUCTION PLAN 129-100-014	Approved	0	0	0	0	0
Oil and Gas	16AMD-00000-00010 K. Lehr	NORTH GAREY OIL & GAS DRILLING PRODUCTION PLAN 129-180-007	Approved	0	0	0	0	56 wells
Oil and Gas	17AMD-00000-00001 K. Lehr	PHILLIPS 66 ADDITIONAL TRUCK LANE 128-093-030	Proposed					

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Not within a Community/Specific Plan Area Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process				
Approved	2	10,602	0	287,636
Under Construction				
Built	0	0	0	972,720
Totals	***2***	***10,602***	***0***	***1,260,356***

Old Town Orcutt & OCPlan

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Residential	10TPM-00000-00001 D. Eady	BROADWAY & UNION MERCANTILE TPM 14,766 105-092-017	Approved	2	0	0	0	0

Old Town Orcutt & OCPlan Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process				
Approved	2	0	0	0
Under Construction				
Built				
Totals	***2***	***0***	***0***	***0***

Orcutt Community Plan

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Development Plan	01CUP-00000-00115 F. Trotter	ORCUTT AQUACENTER 107-470-011	Approved	0	31,074	0	0	0

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Orcutt Community Plan

continued ...

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Residential	02NEW-00000-00053 J. Zorovich	LEO EVANS-NORTHPOINTE (OLD 98-DP-023) 107-560-001	Approved	32	0	0	0	0
Residential	02TRM-00000-00010 K. Probert	ADDAMO WINERY/DIAMANTE [TM 14,616] 129-151-042	Under Construction	5	0	0	0	0
Residential	03DVP-00000-00009 J. Zorovich	RICE RANCH DEVELOPMENT PLAN 101-010-013 101-020-004 105-140-016	Under Construction	725	0	0	0	
Commercial	06TPM-00000-00022 D. Eady	HOPE COMMUNITY CHURCH (TPM 14,711) 107-150-019	Approved Approved	3 0	0 0	0 0	0 0	0 29,373 sq.ft.
Commercial	07DVP-00000-00009 J. Zorovich	PR INVESTMENTS/EVERGREEN SHOPPING CTR DEV PLAN 109-200-012 109-200-013 109-200-015 109-200-016	Under Construction	0	61,958	0	0	0
Commercial	07TRM-00000-00004 J. Zorovich	ORCUTT MARKETPLACE TRACT MAP (TM 14,734) 129-120-024	Approved	12	0	0	0	0
Residential	07TRM-00000-00006 D. Eady	KEY SITE 30 VEST. TRACT MAP 14,739 107-250-008	Approved	69				
Commercial	09DVP-00000-00029 J. Gerber	CLARK AVENUE COMMERCIAL 103-750-038	Approved	0	12,875	0	0	0

Note: To appear on this report, a CAP must have a primary parcel designated.
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(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Orcutt Community Plan

continued ...

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Residential	10DVP-00000-00002 D. Eady	KEY SITE 30 DEVELOPMENT PLAN 107-250-008	Approved	69	0	0	0	0
Residential	10TRM-00000-00003 D. Eady	TERRACE VILLAS TRACT MAP 14,770 129-300-001 129-300-002 129-300-003 129-300-004 129-300-005 129-300-006 129-300-007 129-300-008 129-300-009 129-300-010 129-300-011 129-300-012 129-300-013 129-300-014 129-300-015 129-300-016 129-300-017 129-300-018 129-300-019 129-300-020	Approved	16	0	0	0	0
Residential	13DVP-00000-00010 D. Eady	KEY SITE 3 DEVELOPMENT PLANS 129-151-026	In Process	0	0	0	0	
Residential	17NGD-00000-00009 J. Gerber	HALSELL TRACT MAP (14,819) 103-200-065	In Process	5				

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Santa Maria Valley

continued ...

Orcutt Community Plan Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process	5	0	0	0
Approved	201	43,949	0	0
Under Construction	730	61,958	0	0
Built				
Totals	***936***	***105,907***	***0***	***0***

Santa Maria Valley Cumulative Status Summaries:

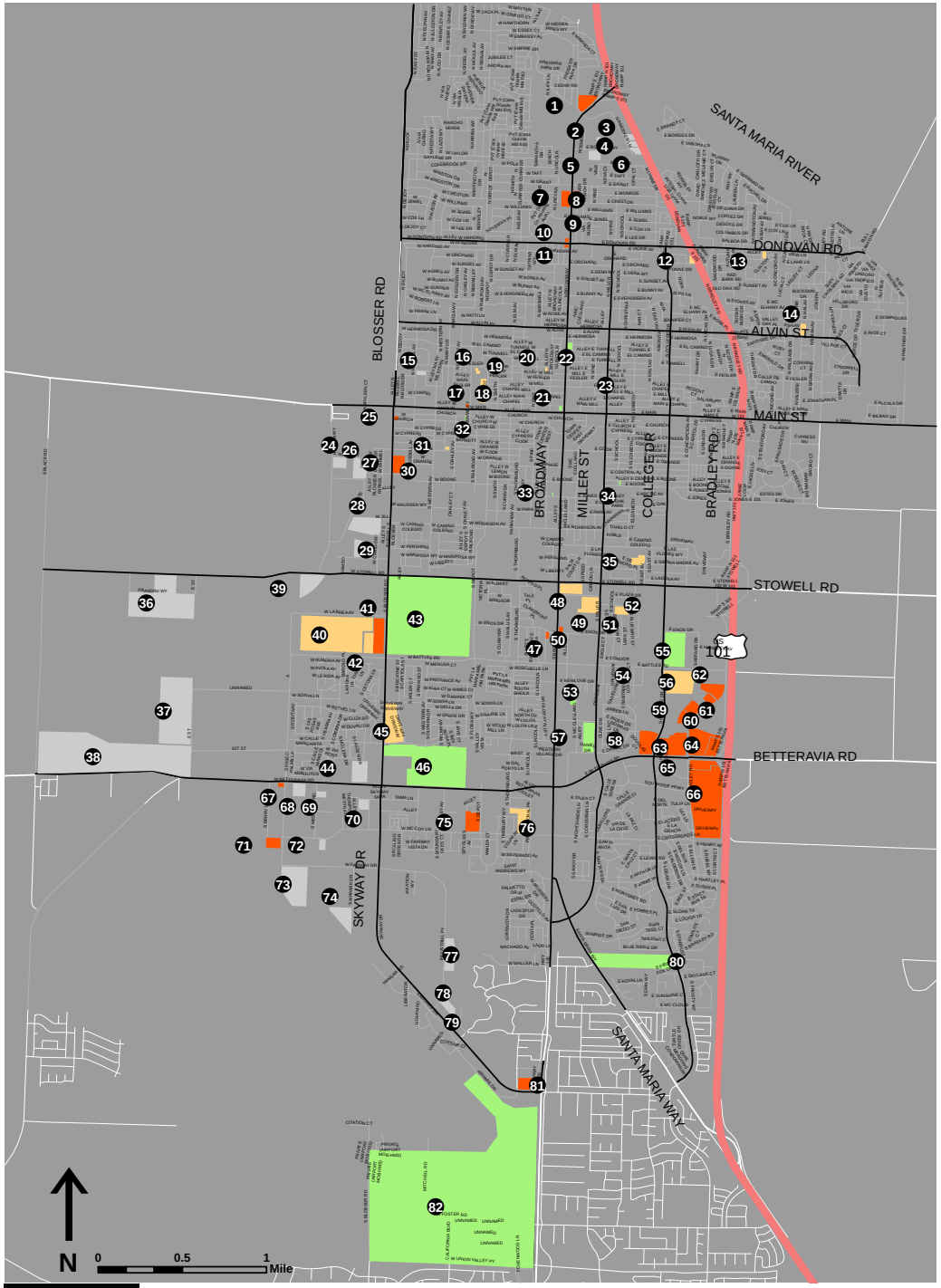
Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process	5	0	0	0
Approved	205	54,551	0	287,636
Under Construction	730	61,958	0	0
Built	0	0	0	972,720
Totals	***940***	***116,509***	***0***	***1,260,356***

Santa Ynez Valley

Not within a Community/Specific Plan Area

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Commercial	15DVP-00000-00012 J. Ritterbeck	NOJOQUI RANCH TIER II WINERY 081-020-024	Approved		12,500			
Commercial	17ZCI-00000-00087 J. Ritterbeck	NOJOQUI RANCH TIER II WINERY 081-020-024	In Process		12,500			

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/



Residential

12 Biely Bradley Apartments
1400 N Bradley Rd
8 unit apartments

13 Bay Avenue Map
1230 E Donovan Rd
Subdivide parcel into 3 res lots

14 Halsel Parcel Map
1501 E Alvin Ave
Subdivide parcel into 4 res lots

16 Fesler Apartments
750 W Fesler St
8 unit apartments

18 Residences at Depot Street
301 N Depot St
80 unit affordable apartments

19 Kimbell Triplex
607 W Fesler St
Triplex addition

20 Cisneros Apartments
207 W Fesler St
4 unit apartments

30 Los Adobes de Maria III
525 S Russel Ave
34 unit affordable apartments

31 Casa Buena Court
905 W Cook St
4 dwelling units

35 Sierra Madre Cottages
624 E Camino Colegio
39 affordable senior apartments

40 Heritage at Westgate Ranch
W Battles Rd at Westgate Rd
296 small-lot single-family homes

42 Villa del Sol Senior Apartments
S Blosser Rd at W Battles Rd
193 unit senior apartments

45 Harvest Glen Gardens
Sonya Ln at Blosser Rd
126 single-family homes

48 Vandenberg Senior Residences
1314 S Broadway
52 unit senior apartment addition

49 Centennial Square
Miller St at Plaza Dr
138 unit apartments

51 Barcellus Senior Apartments
502 E Barcellus Ave
80 unit senior apartments

54 Newlove East Apartments
575 E Newlove Dr
16 unit apartments

56 Easton Apartments
E Battles Rd at College Dr
318 unit apartments

76 Refugio
W McCoy Ln at Professional Pkwy
125 unit townhomes

Commercial

1 Preisker Commercial Center
N Broadway at Preisker Ln
108 rm hotel, drive thru rest, retail

7 Broadway Commons
1700 block of N Broadway
26,879 sq ft commercial center

8 Dorion Map
1790 N Broadway
Subdivide parcel into 2 comm lots

9 Santiago's Car Wash & Retail
1640 N Broadway
Carwash & 1,665 sq ft retail bldg

10 Peppertree Chevron
1601 N Broadway
1,675 sq ft retail & 12 fuel pumps

11 SM Alliance
1519 N Broadway
New canopy & site improvements

17 76 Gas Station
815 W Main St
1,160 sq ft retail & 8 fuel pumps

25 Blosser Coin Laundry
122 S Blosser Rd
4,410 sq ft coin laundry facility

27 Sharer Brother Commercial
450 - 550 S Blosser Rd
64,700 sq ft retail center

41 Westgate Marketplace
S Blosser Rd at W Battles Rd
68,000 sq ft commercial center

47 Joshi Commercial
116 W Enos Dr
3,200 sq ft retail

50 Broadway Plaza
1490 S Broadway
7,214 sq ft retail w/ drive thru

58 Enos Ranchos Mercado
E Betteravia Rd at S College Dr
80,900 sq ft shopping center

59 Lot 11
Lot 11
28,000 sq ft auto dealership

60 Honda
Lot 10
44,900 sq ft auto dealership

61 Lot 5 & 6
Lot 5 & 6
29,000 sq ft auto dealership

62 Toyota
Lot 4
73,000 sq ft auto dealership

63 Bradley West
E Betteravia Rd at S College Dr
131,500 sq ft commercial center

64 Bradley East
E Betteravia Rd at Highway 101
157,000 sq ft shopping center

64 CoastHills Corporate Facility
E Betteravia Rd at Highway 101
81,800 sq ft 3 story building

64 Cracker Barrel
E Betteravia Rd at Highway 101
10,486 sq ft restaurant

65 Santa Maria Freeway Center
1000 E Betteravia Rd
23,455 sq ft retail on 5 pads

66 Crossroads Expansion Pads
2100-2300 S Bradley Rd
27,700 sq ft retial on 3 pads

67 A Street Deli
W Betteravia Rd at A St
4,420 sq ft retail bldg

71 VTC Enterprises
2445 A St
6,187 sq ft vocational training bldg

75 Wisdom Center & Gym Building
2247 & 2255 S Depot St
17,500 sq ft in two bldgs

81 Skyway Center
3596 Skyway Dr
Demo 6,200 sq ft & build
16,000 sq ft retail

Industrial

2 Chavez Farming
1965 Roemer Pl
16,000 sq ft office & warehouse

3 Downs Equipment
1900 block of N Preisker Ln
3,900 sq ft agric equip rental

4 Santa Maria Tire Company
1900 block of N Preisker Ln
8,000 sq ft tire sales/service bldg

5 SMOOTH Bus Wash
240 E Roemer Wy
1,134 sq ft bus wash building

6 Estrada Produce
1900 block of N Preisker Ln
9,915 sq ft produce sales/distrib

15 Candyman Shop
320 N Russell Ave
6,670 sq ft mulit-tenant bldg

24 MJA Cooling Expansion
1370 White Ct
5,213 sq ft addition

26 Certified Fright Logistics
1322 White Ct
11,054 sq ft addition

28 Gold Coast Packing
1205 and 1211 W Craig Dr
101,167 sq ft facility

29 Distribution Center
1259 Furukawa Way
30,000 sq ft addition

36 Bonita Packing Expansion
1850 W Stowell Rd
173,270 sq ft addition

37 Windset Farms Phase IV
1650 Black Rd
1.2 mil sq ft greenhouse &
84,000 sq ft bldg

38 Windset Farms Greenhouse 7-8
1650 Black Rd
4.3 mil sq ft greenhouse & 93k bldg

39 Bishop Grande, LLC
W Stowell Rd at SMV Railroad
12 industrial lots

44 Great American Self Storage
1265 W Betteravia Rd
109,955 sq ft self storage facility

68 CCLI Self Storage
1400 Blk of W Betteravia Rd
122,000 sq ft self storage facility

69 DMS Electric
2224 S Westgate Rd
10,000 sq ft bldg

70 Trava Corp
2329 Thompson Way
33,000 sq ft mult-tenant complex

72 Hardy Diagnostics Expansion
1320 W McCoy Ln
20,000 sq ft addition

73 FedEx Ground
1424 Fairway Dr
182,000 sq ft warehouse

74 2811 Center
2811 Airpark Dr
51,200 sq ft of office in 2 bldgs

77 Platino Development
2900 block Industrial Pkwy
48,717 sq ft in 4 bldgs on 4 lots

78 The Gas Company
3138 Industrial Pkwy
natural gas fueling station

79 Skyway Office
3200 Skyway Drive
19,800 sq ft office bldg

Mixed Use/Other

21 Gateway Mixed Use
101 N Broadway
33,700 sq ft 4 story mixed use bldg

22 The Kitchen
600 N Broadway
7,795 sq ft com/res mixed use

23 Bathia Mixed Use
311 N. Miller Street
1,533 sq ft comm & 6 res units

32 D&J Sober Living Facility
819 W Church Street
mixed-use w/trans housing & off

33 Giachetto
121 W Jones Street
Rezone PD/C-2 to Downtown SP

34 Boone Street Market
501 E Boone St
2,280 sq ft add to market & 2 units

43 Blosser Southeast
S Blosser Rd at W Battles Rd
Amend Blosser Southeast SP

46 Betteravia Plaza
W Betteravia Rd at SMVRR
272 apts & 381,250 sq ft retail/off

52 Skilled Nursing Center
526 E Plaza Dr
99 bed skilled nursing facility

53 Crucified Life Church
NW/c S McClelland Street
11,700 sq ft church bldg

55 First Christian Church
1550 College Dr
78,454 sq ft church expansion

57 Celebration I & II
S Miller St at E Inger Dr
56 homes & 18,900 sq ft office

80 VCA On-Campus Staff Housing
2970 Santa Maria Way
1 caretaker's unit & 3 duplex bldgs

82 SMX Airport Business Park
South side of SMX airport property
Master plan 3 mil sq ft com/ind uses

City of Santa Maria

MAJOR DEVELOPMENTS (JANUARY 2018)

RESIDENTIAL
COMMERCIAL
INDUSTRIAL
MIXED USE/OTHER

Appendix 4

Intersection Level of Service Calculation Worksheets

Existing and Existing + Project AM and PM Peak Hour

HCS7 All-Way Stop Control Report

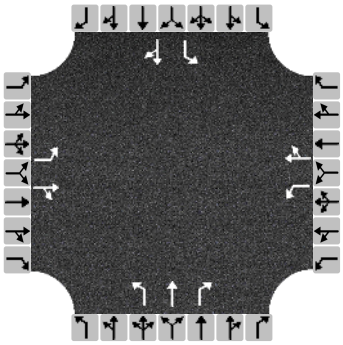
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Analysis Time Period (hrs)	0.25
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	17	160	2	21	82	95	3	14	12	114	15	21
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	18	176		23	192		3	15	13	124	39	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.016	0.157		0.020	0.171		0.003	0.014	0.012	0.110	0.035	
Final Departure Headway, hd (s)	6.21	5.70		6.19	5.31		6.76	6.25	5.54	6.42	5.50	
Final Degree of Utilization, x	0.032	0.279		0.039	0.284		0.006	0.026	0.020	0.221	0.060	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	3.91	3.40		3.89	3.01		4.46	3.95	3.24	4.12	3.20	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	18	176		23	192		3	15	13	124	39	
Capacity	580	632		582	678		533	576	650	561	654	
95% Queue Length, Q_{95} (veh)	0.1	1.1		0.1	1.2		0.0	0.1	0.1	0.8	0.2	
Control Delay (s/veh)	9.1	10.6		9.1	10.1		9.5	9.1	8.4	10.9	8.6	
Level of Service, LOS	A	B		A	B		A	A	A	B	A	
Approach Delay (s/veh)	10.4			10.0			8.8			10.4		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	10.2						B					

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HCS7 All-Way Stop Control Report

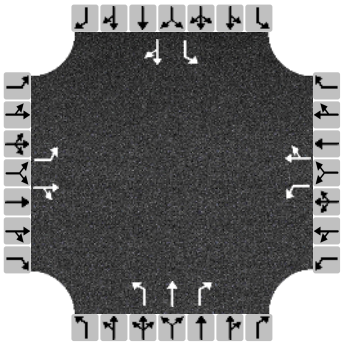
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	EXPR
Analysis Time Period (hrs)	0.25
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	17	160	2	21	82	100	3	14	12	115	15	21
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	18	176		23	198		3	15	13	125	39	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.016	0.157		0.020	0.176		0.003	0.014	0.012	0.111	0.035	
Final Departure Headway, hd (s)	6.22	5.71		6.20	5.31		6.78	6.27	5.56	6.44	5.52	
Final Degree of Utilization, x	0.032	0.279		0.039	0.292		0.006	0.027	0.020	0.224	0.060	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	3.92	3.41		3.90	3.01		4.48	3.97	3.26	4.14	3.22	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	18	176		23	198		3	15	13	125	39	
Capacity	578	630		581	678		531	574	647	559	652	
95% Queue Length, Q_{95} (veh)	0.1	1.1		0.1	1.2		0.0	0.1	0.1	0.9	0.2	
Control Delay (s/veh)	9.1	10.6		9.2	10.2		9.5	9.1	8.4	11.0	8.6	
Level of Service, LOS	A	B		A	B		A	A	A	B	A	
Approach Delay (s/veh)	10.5			10.1			8.9			10.4		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	10.2						B					

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HCS7 All-Way Stop Control Report

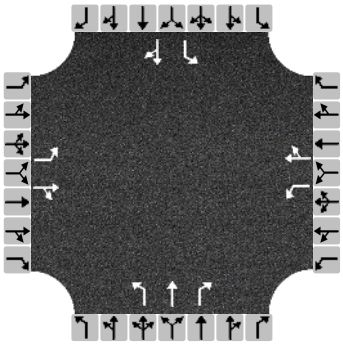
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Analysis Time Period (hrs)	0.25
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	92	117	9	12	118	109	6	21	14	134	28	24
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	100	137		13	247		7	23	15	146	57	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.089	0.122		0.012	0.219		0.006	0.020	0.014	0.129	0.050	
Final Departure Headway, hd (s)	6.58	6.03		6.55	5.71		7.25	6.75	6.03	6.82	5.98	
Final Degree of Utilization, x	0.183	0.229		0.024	0.391		0.013	0.043	0.026	0.276	0.094	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	4.28	3.73		4.25	3.41		4.95	4.45	3.73	4.52	3.68	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	100	137		13	247		7	23	15	146	57	
Capacity	547	597		549	630		496	534	597	528	602	
95% Queue Length, Q_{95} (veh)	0.7	0.9		0.1	1.9		0.0	0.1	0.1	1.1	0.3	
Control Delay (s/veh)	10.7	10.5		9.4	12.0		10.0	9.7	8.9	12.1	9.3	
Level of Service, LOS	B	B		A	B		B	A	A	B	A	
Approach Delay (s/veh)	10.6			11.9			9.5			11.3		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	11.2						B					

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HCS7 All-Way Stop Control Report

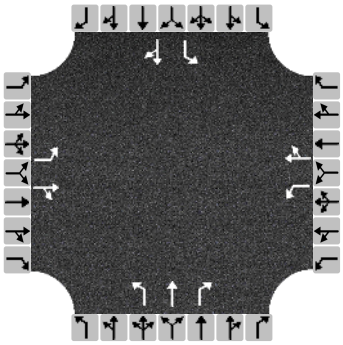
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	EXPR
Analysis Time Period (hrs)	0.25
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	92	117	9	12	118	112	6	21	14	139	28	24
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	100	137		13	250		7	23	15	151	57	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.089	0.122		0.012	0.222		0.006	0.020	0.014	0.134	0.050	
Final Departure Headway, hd (s)	6.62	6.06		6.58	5.73		7.29	6.78	6.07	6.83	6.00	
Final Degree of Utilization, x	0.184	0.231		0.024	0.398		0.013	0.043	0.026	0.287	0.094	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	4.32	3.76		4.28	3.43		4.99	4.48	3.77	4.53	3.70	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	100	137		13	250		7	23	15	151	57	
Capacity	544	594		547	628		494	531	593	527	600	
95% Queue Length, Q_{95} (veh)	0.7	0.9		0.1	1.9		0.0	0.1	0.1	1.2	0.3	
Control Delay (s/veh)	10.8	10.6		9.4	12.2		10.1	9.8	8.9	12.3	9.3	
Level of Service, LOS	B	B		A	B		B	A	A	B	A	
Approach Delay (s/veh)	10.7			12.0			9.5			11.5		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	11.3						B					

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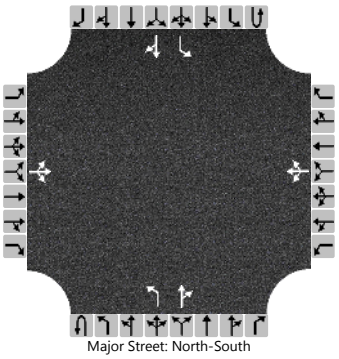
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	2018	North/South Street	SR 1
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		2	2	0		8	2	82		1	142	5		87	190	0
Percent Heavy Vehicles (%)		3	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			4				100			1				95		
Capacity, c (veh/h)			375				786			1353				1407		
v/c Ratio			0.01				0.13			0.00				0.07		
95% Queue Length, Q_{95} (veh)			0.0				0.4			0.0				0.2		
Control Delay (s/veh)			14.7				10.2			7.7				7.7		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	14.7				10.2				0.1				2.4			
Approach LOS	B				B											

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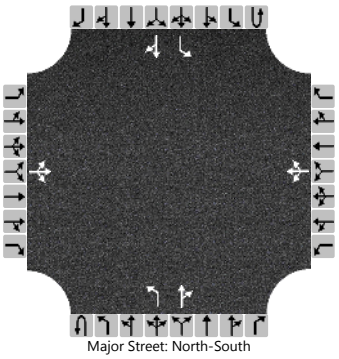
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	EXPR	North/South Street	SR 1
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		2	2	0		8	2	90		1	160	5		112	243	0
Percent Heavy Vehicles (%)		3	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			4				109			1				122		
Capacity, c (veh/h)			301				743			1288				1384		
v/c Ratio			0.01				0.15			0.00				0.09		
95% Queue Length, Q_{95} (veh)			0.0				0.5			0.0				0.3		
Control Delay (s/veh)			17.1				10.7			7.8				7.9		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	17.1				10.7				0.0				2.5			
Approach LOS	C				B											

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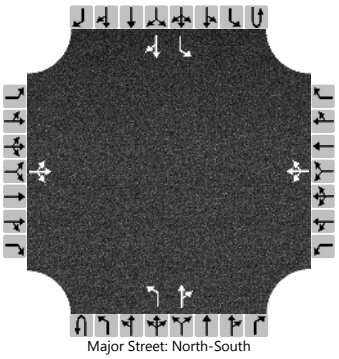
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	2018	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		2	1	1		4	4	42		0	201	7		78	186	2
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			4				54			0				85		
Capacity, c (veh/h)			424				692			1355				1331		
v/c Ratio			0.01				0.08			0.00				0.06		
95% Queue Length, Q_{95} (veh)			0.0				0.3			0.0				0.2		
Control Delay (s/veh)			13.6				10.6			7.7				7.9		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.6				10.6				0.0				2.3			
Approach LOS	B				B											

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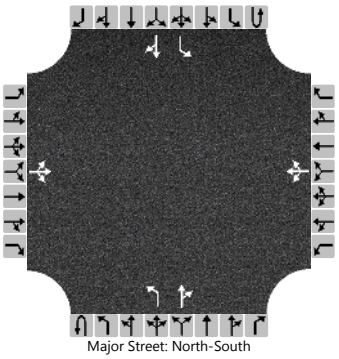
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	EXPR	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		2	1	1		4	4	69		0	261	7		94	221	2
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			4				84			0				102		
Capacity, c (veh/h)			332				653			1312				1259		
v/c Ratio			0.01				0.13			0.00				0.08		
95% Queue Length, Q_{95} (veh)			0.0				0.4			0.0				0.3		
Control Delay (s/veh)			16.0				11.3			7.7				8.1		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	16.0				11.3				0.0				2.4			
Approach LOS	C				B											

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HCS7 Two-Way Stop-Control Report

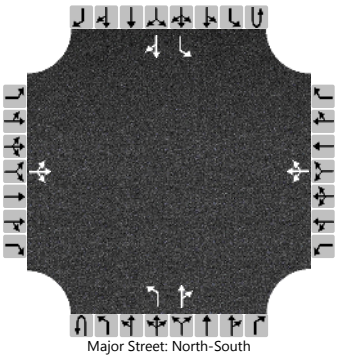
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Time Analyzed	AM PEAK HOUR
Intersection Orientation	North-South
Project Description	KS 21

Site Information

Intersection	03. SR 1/CLARK AVE
Jurisdiction	SB COUNTY
East/West Street	SOLOMON RD
North/South Street	SR 1
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	3	0		60	0	88		0	61	16		77	116	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			3				161			0				84		
Capacity, c (veh/h)			521				748			1448				1501		
v/c Ratio			0.01				0.21			0.00				0.06		
95% Queue Length, Q_{95} (veh)			0.0				0.8			0.0				0.2		
Control Delay (s/veh)			12.0				11.1			7.5				7.5		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	12.0				11.1				0.0				3.0			
Approach LOS	B				B											

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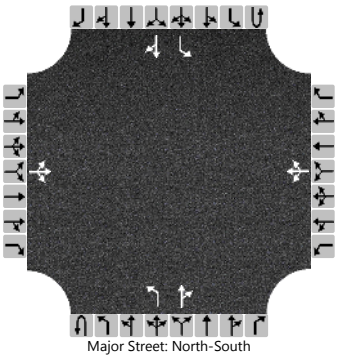
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	03. SR 1/CLARK AVE
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	EXPR	North/South Street	SR 1
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	3	0		60	0	103		0	64	16		122	124	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			3				177			0				133		
Capacity, c (veh/h)			436				688			1437				1496		
v/c Ratio			0.01				0.26			0.00				0.09		
95% Queue Length, Q_{95} (veh)			0.0				1.0			0.0				0.3		
Control Delay (s/veh)			13.3				12.0			7.5				7.6		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.3				12.0				0.0				3.8			
Approach LOS	B				B											

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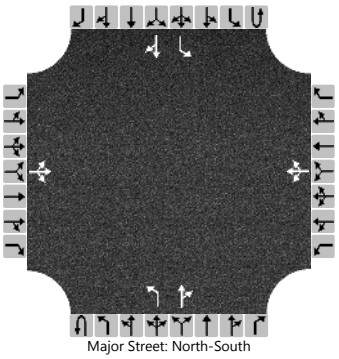
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	03. SR 1/CLARK AVE
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	2018	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	2	0		33	1	84		0	129	71		107	82	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			2				128			0				116		
Capacity, c (veh/h)			408				676			1494				1340		
v/c Ratio			0.01				0.19			0.00				0.09		
95% Queue Length, Q_{95} (veh)			0.0				0.7			0.0				0.3		
Control Delay (s/veh)			13.9				11.6			7.4				7.9		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.9				11.6				0.0				4.5			
Approach LOS	B				B											

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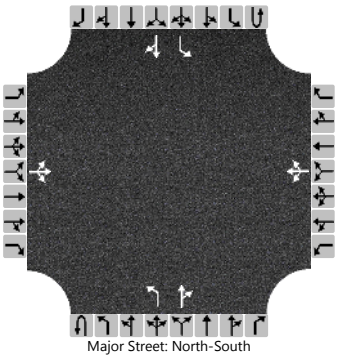
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	03. SR 1/CLARK AVE
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	EXPR	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	2	0		33	1	135		0	138	71		137	87	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			2				184			0				149		
Capacity, c (veh/h)			357				682			1487				1329		
v/c Ratio			0.01				0.27			0.00				0.11		
95% Queue Length, Q_{95} (veh)			0.0				1.1			0.0				0.4		
Control Delay (s/veh)			15.2				12.2			7.4				8.0		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	15.2				12.2				0.0				4.9			
Approach LOS	C				B											

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HCS7 All-Way Stop Control Report

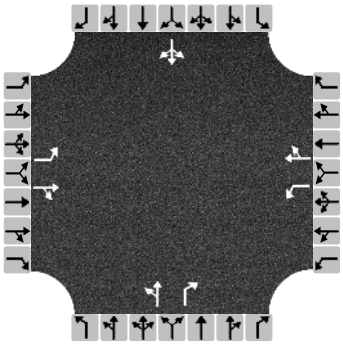
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Analysis Time Period (hrs)	1.00
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	119	39	20	88	30	59	43	18	71	65	31
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	8	158		20	118		102	18		167		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.007	0.140		0.018	0.105		0.091	0.016		0.148		
Final Departure Headway, hd (s)	6.05	5.37		6.08	5.40		5.86	4.87		5.51		
Final Degree of Utilization, x	0.013	0.236		0.034	0.177		0.166	0.024		0.256		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	3.75	3.07		3.78	3.10		3.56	2.57		3.51		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	8	158		20	118		102	18		167		
Capacity	595	670		592	667		614	739		654		
95% Queue Length, Q_{95} (veh)	0.0	0.9		0.1	0.6		0.6	0.1		1.0		
Control Delay (s/veh)	8.8	9.7		9.0	9.3		9.7	7.7		10.4		
Level of Service, LOS	A	A		A	A		A	A		B		
Approach Delay (s/veh)	9.7			9.2			9.4			10.4		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	9.7						A					

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HCS7 All-Way Stop Control Report

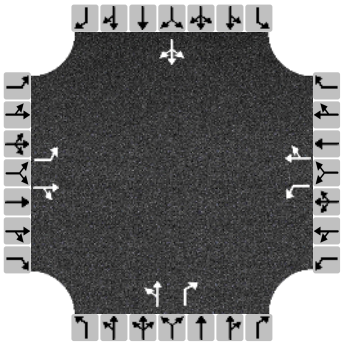
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	EXPR
Analysis Time Period (hrs)	1.00
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	160	39	20	102	30	59	43	18	71	65	31
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	8	199		20	132		102	18		167		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.007	0.177		0.018	0.117		0.091	0.016		0.148		
Final Departure Headway, hd (s)	6.09	5.45		6.15	5.49		6.03	5.04		5.67		
Final Degree of Utilization, x	0.014	0.301		0.034	0.201		0.171	0.025		0.263		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	3.79	3.15		3.85	3.19		3.73	2.74		3.67		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	8	199		20	132		102	18		167		
Capacity	591	661		585	656		597	714		635		
95% Queue Length, Q_{95} (veh)	0.0	1.3		0.1	0.8		0.6	0.1		1.1		
Control Delay (s/veh)	8.9	10.5		9.1	9.6		10.0	7.9		10.7		
Level of Service, LOS	A	B		A	A		A	A		B		
Approach Delay (s/veh)	10.4			9.5			9.7			10.7		
Approach LOS	B			A			A			B		
Intersection Delay, s/veh | LOS	10.1						B					

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HCS7 All-Way Stop Control Report

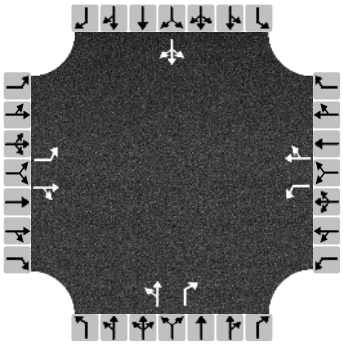
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Analysis Time Period (hrs)	1.00
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	37	160	61	56	122	58	54	51	52	48	69	26
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	37	221		56	180		105	52		143		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.033	0.196		0.050	0.160		0.093	0.046		0.127		
Final Departure Headway, hd (s)	6.29	5.59		6.32	5.59		6.37	5.41		6.07		
Final Degree of Utilization, x	0.065	0.343		0.098	0.279		0.186	0.078		0.241		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	3.99	3.29		4.02	3.29		4.07	3.11		4.07		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	37	221		56	180		105	52		143		
Capacity	572	643		570	644		565	665		593		
95% Queue Length, Q_{95} (veh)	0.2	1.6		0.3	1.2		0.7	0.3		0.9		
Control Delay (s/veh)	9.4	11.2		9.7	10.5		10.5	8.6		11.0		
Level of Service, LOS	A	B		A	B		B	A		B		
Approach Delay (s/veh)	11.0			10.3			9.9			11.0		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	10.5						B					

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HCS7 All-Way Stop Control Report

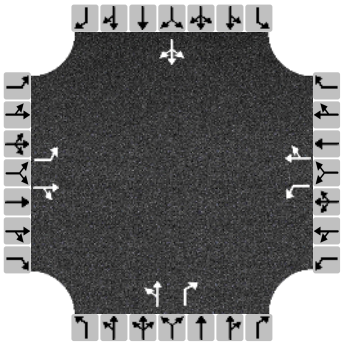
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	EXPR
Analysis Time Period (hrs)	1.00
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	37	187	61	56	168	58	54	51	52	48	69	26
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	37	248		56	226		105	52		143		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.033	0.220		0.050	0.201		0.093	0.046		0.127		
Final Departure Headway, hd (s)	6.39	5.72		6.40	5.71		6.59	5.63		6.28		
Final Degree of Utilization, x	0.066	0.394		0.099	0.358		0.192	0.081		0.249		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.09	3.42		4.10	3.41		4.29	3.33		4.28		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	37	248		56	226		105	52		143		
Capacity	563	630		563	630		546	639		574		
95% Queue Length, Q_{95} (veh)	0.2	1.9		0.3	1.7		0.7	0.3		1.0		
Control Delay (s/veh)	9.5	12.1		9.8	11.6		10.9	8.8		11.4		
Level of Service, LOS	A	B		A	B		B	A		B		
Approach Delay (s/veh)	11.8			11.2			10.2			11.4		
Approach LOS	B			B			B			B		
Intersection Delay, s/veh | LOS	11.2						B					

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HCS7 Two-Way Stop-Control Report

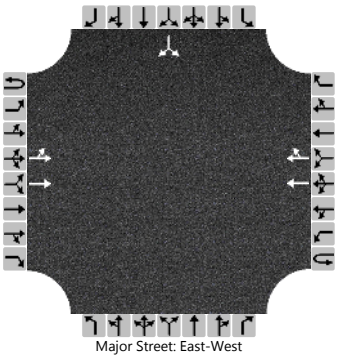
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		LT	T				T	TR							LR	
Volume (veh/h)		36	511				540	56						53		44
Percent Heavy Vehicles (%)		4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		36													97	
Capacity, c (veh/h)		963													369	
v/c Ratio		0.04													0.26	
95% Queue Length, Q_{95} (veh)		0.1													1.1	
Control Delay (s/veh)		8.9													18.2	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.8												18.2			
Approach LOS													C			

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HCS7 Two-Way Stop-Control Report

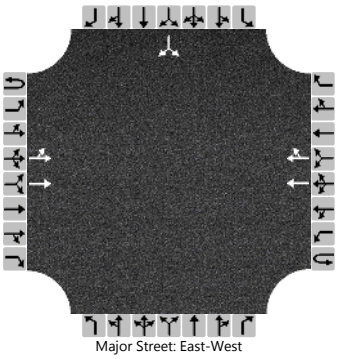
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	EXPR
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		LT	T				T	TR							LR	
Volume (veh/h)		36	552				554	56						53		44
Percent Heavy Vehicles (%)		4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		36													97	
Capacity, c (veh/h)		951													354	
v/c Ratio		0.04													0.27	
95% Queue Length, Q_{95} (veh)		0.1													1.1	
Control Delay (s/veh)		8.9													19.0	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.7												19.0			
Approach LOS													C			

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HCS7 Two-Way Stop-Control Report

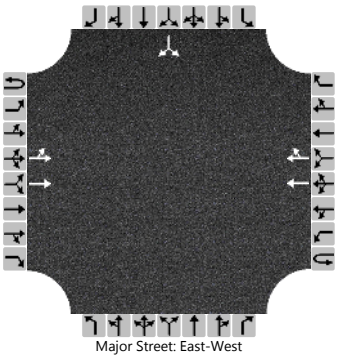
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	2018
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		LT	T				T	TR							LR	
Volume (veh/h)		21	451				546	78						43		28
Percent Heavy Vehicles (%)		4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		21													71	
Capacity, c (veh/h)		940													372	
v/c Ratio		0.02													0.19	
95% Queue Length, Q_{95} (veh)		0.1													0.7	
Control Delay (s/veh)		8.9													16.9	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.5												16.9			
Approach LOS													C			

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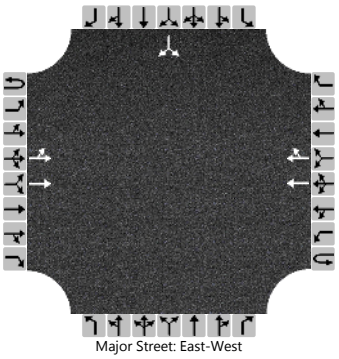
HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		Site Information	
Analyst	DJL	Intersection	05. CLARK AV/FOXENWOOD LN
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	CLARK AVE
Analysis Year	EXPR	North/South Street	FOXENWOOD LN
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	1.00
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	KS 21		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		LT	T				T	TR							LR	
Volume (veh/h)		21	478				592	78						43		28
Percent Heavy Vehicles (%)		4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		21													71	
Capacity, c (veh/h)		903													345	
v/c Ratio		0.02													0.21	
95% Queue Length, Q_{95} (veh)		0.1													0.8	
Control Delay (s/veh)		9.1													18.2	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.5												18.2			
Approach LOS													C			

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INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 6
NORTH/SOUTH STREET: Route 135 SB
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	0	0	0	132	1	238	0	527	32	188	358	0
Project Trips	0	0	0	0	0	4	0	41	0	0	10	0
GEOMETRY					LT	R		T TR		L	TT	

Move-ment	**Level of Service Calculations**							
	Lanes			**Volume**		**V/C Ratio**		
	Lane		Capacity	Base	Project	Base		Project
NBL	0.0		0	0	0	0.00	*	0.00 *
NBT	0.0		0	0	0	0.00		0.00
NBR	0.0		0	0	0	0.00		0.00
SBL	0.0		0	132	132	0.00		0.00
SBT	1.0		1,600	1	1	0.08	*	0.08 *
SBR	1.0	(a)	1,600	238	242	0.15		0.15
EBL	0.0		0	0	0	0.00		0.00
EBT	2.0		3,200	527	568	0.17	*	0.19 *
EBR	0.0		0	32	32	0.00		0.00
WBL	1.0		1,600	188	188	0.12	*	0.12 *
WBT	2.0		3,200	358	368	0.11		0.12
WBR	0.0		0	0	0	0.00		0.00
N/S Critical Movements						0.08		0.08
E/W Critical Movements						0.29		0.31
Clearance Interval						0.10		0.10
ICU						0.47		0.49
Level of Service (LOS)						A		A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:
(a) not critical due to RTOR.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	527	32	188	358	0	0	0	0	132	1	238
Future Volume (veh/h)	0	527	32	188	358	0	0	0	0	132	1	238
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	573	35	204	389	0				143	1	259
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	766	47	255	1568	0				736	3	653
Arrive On Green	0.00	0.23	0.23	0.14	0.44	0.00				0.41	0.41	0.41
Sat Flow, veh/h	0	3496	208	1781	3647	0				1781	6	1580
Grp Volume(v), veh/h	0	299	309	204	389	0				143	0	260
Grp Sat Flow(s),veh/h/ln	0	1777	1833	1781	1777	0				1781	0	1586
Q Serve(g_s), s	0.0	8.6	8.6	6.1	3.8	0.0				2.8	0.0	6.3
Cycle Q Clear(g_c), s	0.0	8.6	8.6	6.1	3.8	0.0				2.8	0.0	6.3
Prop In Lane	0.00		0.11	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	400	413	255	1568	0				736	0	656
V/C Ratio(X)	0.00	0.75	0.75	0.80	0.25	0.00				0.19	0.00	0.40
Avail Cap(c_a), veh/h	0	517	533	356	2003	0				736	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.57	0.57	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.9	19.9	22.8	9.6	0.0				10.3	0.0	11.3
Incr Delay (d2), s/veh	0.0	4.3	4.3	5.0	0.0	0.0				0.6	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	3.8	2.7	1.2	0.0				1.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	24.1	27.8	9.7	0.0				10.9	0.0	13.1
LnGrp LOS	A	C	C	C	A	A				B	A	B
Approach Vol, veh/h		608			593						403	
Approach Delay, s/veh		24.2			15.9						12.3	
Approach LOS		C			B						B	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		11.9	16.4		26.7		28.3					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		11.0	16.0		16.0		31.0					
Max Q Clear Time (g_c+I1), s		8.1	10.6		8.3		5.8					
Green Ext Time (p_c), s		0.2	1.7		1.3		2.6					

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	568	32	188	368	0	0	0	0	132	1	238
Future Volume (veh/h)	0	568	32	188	368	0	0	0	0	132	1	238
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	617	35	204	400	0				143	1	259
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	806	46	255	1606	0				717	2	636
Arrive On Green	0.00	0.24	0.24	0.14	0.45	0.00				0.40	0.40	0.40
Sat Flow, veh/h	0	3512	194	1781	3647	0				1781	6	1580
Grp Volume(v), veh/h	0	320	332	204	400	0				143	0	260
Grp Sat Flow(s),veh/h/ln	0	1777	1835	1781	1777	0				1781	0	1586
Q Serve(g_s), s	0.0	9.2	9.3	6.1	3.8	0.0				2.9	0.0	6.4
Cycle Q Clear(g_c), s	0.0	9.2	9.3	6.1	3.8	0.0				2.9	0.0	6.4
Prop In Lane	0.00		0.11	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	419	433	255	1606	0				717	0	639
V/C Ratio(X)	0.00	0.76	0.77	0.80	0.25	0.00				0.20	0.00	0.41
Avail Cap(c_a), veh/h	0	517	534	356	2003	0				717	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.56	0.56	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.6	19.6	22.8	9.3	0.0				10.7	0.0	11.7
Incr Delay (d2), s/veh	0.0	5.4	5.3	4.9	0.0	0.0				0.6	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.2	2.7	1.2	0.0				1.1	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.0	24.9	27.7	9.4	0.0				11.3	0.0	13.7
LnGrp LOS	A	C	C	C	A	A				B	A	B
Approach Vol, veh/h		652			604						403	
Approach Delay, s/veh		24.9			15.6						12.8	
Approach LOS		C			B						B	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		11.9	17.0		26.1		28.9					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		11.0	16.0		16.0		31.0					
Max Q Clear Time (g_c+I1), s		8.1	11.3		8.4		5.8					
Green Ext Time (p_c), s		0.2	1.7		1.3		2.7					

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 6
NORTH/SOUTH STREET: Route 135 SB
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	0	0	0	268	1	218	0	478	11	102	397	0
Project Trips	0	0	0	0	0	14	0	27	0	0	32	0
GEOMETRY					LT	R		T	TR	L	TT	

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	0	0	0.00 *	0.00 *
NBT	0.0	0	0	0	0.00	0.00
NBR	0.0	0	0	0	0.00	0.00
SBL	0.0	0	268	268	0.00	0.00
SBT	1.0	1,600	1	1	0.17 *	0.17 *
SBR	1.0	1,600	218	232	0.14	0.15
EBL	0.0	0	0	0	0.00	0.00
EBT	2.0	3,200	478	505	0.15 *	0.16 *
EBR	0.0	0	11	11	0.00	0.00
WBL	1.0	1,600	102	102	0.06 *	0.06 *
WBT	2.0	3,200	397	429	0.12	0.13
WBR	0.0	0	0	0	0.00	0.00
N/S Critical Movements					0.17	0.17
E/W Critical Movements					0.21	0.22
Clearance Interval					0.10	0.10
ICU					0.48	0.49
Level of Service (LOS)					A	A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	478	11	102	397	0	0	0	0	268	1	218
Future Volume (veh/h)	0	478	11	102	397	0	0	0	0	268	1	218
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	520	12	111	432	0				291	1	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	711	16	142	1231	0				927	3	822
Arrive On Green	0.00	0.20	0.20	0.16	0.69	0.00				0.52	0.52	0.52
Sat Flow, veh/h	0	3644	82	1781	3647	0				1781	7	1579
Grp Volume(v), veh/h	0	260	272	111	432	0				291	0	238
Grp Sat Flow(s),veh/h/ln	0	1777	1856	1781	1777	0				1781	0	1586
Q Serve(g_s), s	0.0	8.2	8.2	3.6	3.0	0.0				5.6	0.0	5.1
Cycle Q Clear(g_c), s	0.0	8.2	8.2	3.6	3.0	0.0				5.6	0.0	5.1
Prop In Lane	0.00		0.04	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	356	371	142	1231	0				927	0	825
V/C Ratio(X)	0.00	0.73	0.73	0.78	0.35	0.00				0.31	0.00	0.29
Avail Cap(c_a), veh/h	0	503	526	267	1777	0				927	0	825
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.66	0.66	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.5	22.5	24.7	6.5	0.0				8.3	0.0	8.1
Incr Delay (d2), s/veh	0.0	3.2	3.1	6.2	0.1	0.0				0.9	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	3.6	1.6	0.9	0.0				2.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.7	25.6	30.9	6.6	0.0				9.1	0.0	9.0
LnGrp LOS	A	C	C	C	A	A				A	A	A
Approach Vol, veh/h		532			543						529	
Approach Delay, s/veh		25.7			11.6						9.1	
Approach LOS		C			B						A	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		8.8	16.0		35.2		24.8					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		5.6	10.2		7.6		5.0					
Green Ext Time (p_c), s		0.1	1.8		2.1		3.0					

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	505	11	102	429	0	0	0	0	268	1	218
Future Volume (veh/h)	0	505	11	102	429	0	0	0	0	268	1	218
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	549	12	111	466	0				291	1	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	739	16	142	1258	0				913	3	810
Arrive On Green	0.00	0.21	0.21	0.16	0.71	0.00				0.51	0.51	0.51
Sat Flow, veh/h	0	3649	78	1781	3647	0				1781	7	1579
Grp Volume(v), veh/h	0	274	287	111	466	0				291	0	238
Grp Sat Flow(s),veh/h/ln	0	1777	1856	1781	1777	0				1781	0	1586
Q Serve(g_s), s	0.0	8.7	8.7	3.6	3.1	0.0				5.7	0.0	5.2
Cycle Q Clear(g_c), s	0.0	8.7	8.7	3.6	3.1	0.0				5.7	0.0	5.2
Prop In Lane	0.00		0.04	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	369	386	142	1258	0				913	0	813
V/C Ratio(X)	0.00	0.74	0.74	0.78	0.37	0.00				0.32	0.00	0.29
Avail Cap(c_a), veh/h	0	503	526	267	1777	0				913	0	813
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.64	0.64	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.3	22.3	24.7	6.1	0.0				8.5	0.0	8.4
Incr Delay (d2), s/veh	0.0	3.9	3.8	6.0	0.1	0.0				0.9	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	3.9	1.6	0.9	0.0				2.1	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	26.1	26.0	30.7	6.2	0.0				9.4	0.0	9.3
LnGrp LOS	A	C	C	C	A	A				A	A	A
Approach Vol, veh/h		561			577						529	
Approach Delay, s/veh		26.1			10.9						9.4	
Approach LOS		C			B						A	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		8.8	16.5		34.8		25.2					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		5.6	10.7		7.7		5.1					
Green Ext Time (p_c), s		0.1	1.8		2.1		3.2					

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 7
NORTH/SOUTH STREET: Route 135 NB
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	5	1	73	0	0	0	157	510	0	0	542	294
Project Trips	0	0	0	0	0	0	12	29	0	0	10	0
GEOMETRY	LT TR						L	TT		T TR		

Move-ment	**Level of Service Calculations**					
	Lanes		**Volume**		**V/C Ratio**	
	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	5	5	0.00	0.00
NBT	2.0	3,200	1	1	0.02 *	0.02 *
NBR	0.0	0	73	73	0.00	0.00
SBL	0.0	0	0	0	0.00 *	0.00 *
SBT	0.0	0	0	0	0.00	0.00
SBR	0.0	0	0	0	0.00	0.00
EBL	1.0	1,600	157	169	0.10 *	0.11 *
EBT	2.0	3,200	510	539	0.16	0.17
EBR	0.0	0	0	0	0.00	0.00
WBL	0.0	0	0	0	0.00	0.00
WBT	2.0	3,200	542	552	0.26 *	0.26 *
WBR	0.0	0	294	294	0.00	0.00
N/S Critical Movements					0.02	0.02
E/W Critical Movements					0.36	0.37
Clearance Interval					0.10	0.10
ICU					0.48	0.49
Level of Service (LOS)					A	A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	510	0	0	542	294	5	1	73	0	0	0
Future Volume (veh/h)	157	510	0	0	542	294	5	1	73	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	171	554	0	0	589	320	5	1	79			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	216	1794	0	0	704	382	645	7	568			
Arrive On Green	0.12	0.50	0.00	0.00	0.32	0.32	0.36	0.36	0.36			
Sat Flow, veh/h	1781	3647	0	0	2316	1207	1781	20	1568			
Grp Volume(v), veh/h	171	554	0	0	471	438	5	0	80			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1653	1781	0	1588			
Q Serve(g_s), s	5.6	5.5	0.0	0.0	14.8	14.8	0.1	0.0	2.0			
Cycle Q Clear(g_c), s	5.6	5.5	0.0	0.0	14.8	14.8	0.1	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		0.99			
Lane Grp Cap(c), veh/h	216	1794	0	0	563	523	645	0	575			
V/C Ratio(X)	0.79	0.31	0.00	0.00	0.84	0.84	0.01	0.00	0.14			
Avail Cap(c_a), veh/h	327	2132	0	0	622	579	645	0	575			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.6	8.7	0.0	0.0	19.1	19.1	12.2	0.0	12.9			
Incr Delay (d2), s/veh	5.9	0.1	0.0	0.0	9.0	9.7	0.0	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.6	1.8	0.0	0.0	6.9	6.5	0.0	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	8.8	0.0	0.0	28.1	28.7	12.3	0.0	13.4			
LnGrp LOS	C	A	A	A	C	C	B	A	B			
Approach Vol, veh/h		725			909			85				
Approach Delay, s/veh		14.2			28.4			13.3				
Approach LOS		B			C			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		25.7		34.3			11.3	23.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		4.0		7.5			7.6	16.8				
Green Ext Time (p_c), s		0.3		4.1			0.1	2.2				

Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	539	0	0	552	294	5	1	73	0	0	0
Future Volume (veh/h)	169	539	0	0	552	294	5	1	73	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	184	586	0	0	600	320	5	1	79			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	231	1830	0	0	713	380	627	7	552			
Arrive On Green	0.13	0.51	0.00	0.00	0.32	0.32	0.35	0.35	0.35			
Sat Flow, veh/h	1781	3647	0	0	2332	1194	1781	20	1568			
Grp Volume(v), veh/h	184	586	0	0	476	444	5	0	80			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1656	1781	0	1588			
Q Serve(g_s), s	6.0	5.7	0.0	0.0	15.0	15.0	0.1	0.0	2.1			
Cycle Q Clear(g_c), s	6.0	5.7	0.0	0.0	15.0	15.0	0.1	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		0.99			
Lane Grp Cap(c), veh/h	231	1830	0	0	566	528	627	0	559			
V/C Ratio(X)	0.80	0.32	0.00	0.00	0.84	0.84	0.01	0.00	0.14			
Avail Cap(c_a), veh/h	327	2132	0	0	622	579	627	0	559			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.76	0.76	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.3	8.5	0.0	0.0	19.0	19.0	12.6	0.0	13.3			
Incr Delay (d2), s/veh	6.8	0.1	0.0	0.0	9.4	10.0	0.0	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	1.9	0.0	0.0	7.0	6.6	0.0	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	8.5	0.0	0.0	28.4	29.1	12.7	0.0	13.8			
LnGrp LOS	C	A	A	A	C	C	B	A	B			
Approach Vol, veh/h		770			920			85				
Approach Delay, s/veh		14.2			28.7			13.7				
Approach LOS		B			C			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		25.1		34.9			11.8	23.1				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		4.1		7.7			8.0	17.0				
Green Ext Time (p_c), s		0.3		4.3			0.1	2.1				

Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 7
NORTH/SOUTH STREET: Route 135 NB
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	17	0	212	0	0	0	135	607	0	0	470	192
Project Trips	0	0	0	0	0	0	8	19	0	0	32	0
GEOMETRY	LT TR						L	TT		T TR		

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	17	17	0.00	0.00
NBT	2.0	3,200	0	0	0.07 *	0.07 *
NBR	0.0	0	212	212	0.00	0.00
SBL	0.0	0	0	0	0.00 *	0.00 *
SBT	0.0	0	0	0	0.00	0.00
SBR	0.0	0	0	0	0.00	0.00
EBL	1.0	1,600	135	143	0.08 *	0.09 *
EBT	2.0	3,200	607	626	0.19	0.20
EBR	0.0	0	0	0	0.00	0.00
WBL	0.0	0	0	0	0.00	0.00
WBT	2.0	3,200	470	502	0.21 *	0.22 *
WBR	0.0	0	192	192	0.00	0.00
N/S Critical Movements					0.07	0.07
E/W Critical Movements					0.29	0.31
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.46	0.48
Level of Service (LOS)					A	A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	607	0	0	470	192	17	0	212	0	0	0
Future Volume (veh/h)	135	607	0	0	470	192	17	0	212	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	147	660	0	0	511	209	18	0	230			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	185	1539	0	0	647	264	772	0	687			
Arrive On Green	0.21	0.87	0.00	0.00	0.26	0.26	0.43	0.00	0.43			
Sat Flow, veh/h	1781	3647	0	0	2557	1003	1781	0	1585			
Grp Volume(v), veh/h	147	660	0	0	368	352	18	0	230			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1690	1781	0	1585			
Q Serve(g_s), s	4.7	2.4	0.0	0.0	11.5	11.6	0.3	0.0	5.8			
Cycle Q Clear(g_c), s	4.7	2.4	0.0	0.0	11.5	11.6	0.3	0.0	5.8			
Prop In Lane	1.00		0.00	0.00		0.59	1.00		1.00			
Lane Grp Cap(c), veh/h	185	1539	0	0	467	444	772	0	687			
V/C Ratio(X)	0.80	0.43	0.00	0.00	0.79	0.79	0.02	0.00	0.33			
Avail Cap(c_a), veh/h	297	1955	0	0	563	535	772	0	687			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.83	0.83	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.2	2.4	0.0	0.0	20.6	20.6	9.7	0.0	11.3			
Incr Delay (d2), s/veh	6.4	0.2	0.0	0.0	6.1	6.7	0.1	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	0.6	0.0	0.0	5.2	5.0	0.1	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	2.6	0.0	0.0	26.7	27.3	9.8	0.0	12.6			
LnGrp LOS	C	A	A	A	C	C	A	A	B			
Approach Vol, veh/h		807			720			248				
Approach Delay, s/veh		7.5			27.0			12.4				
Approach LOS		A			C			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		30.0		30.0			10.2	19.8				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		19.0		33.0			10.0	19.0				
Max Q Clear Time (g_c+I1), s		7.8		4.4			6.7	13.6				
Green Ext Time (p_c), s		1.1		5.0			0.1	2.1				

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	626	0	0	502	192	17	0	212	0	0	0
Future Volume (veh/h)	143	626	0	0	502	192	17	0	212	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	155	680	0	0	546	209	18	0	230			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	194	1585	0	0	680	260	749	0	667			
Arrive On Green	0.22	0.89	0.00	0.00	0.27	0.27	0.42	0.00	0.42			
Sat Flow, veh/h	1781	3647	0	0	2608	960	1781	0	1585			
Grp Volume(v), veh/h	155	680	0	0	385	370	18	0	230			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1698	1781	0	1585			
Q Serve(g_s), s	4.9	2.0	0.0	0.0	12.1	12.2	0.4	0.0	5.9			
Cycle Q Clear(g_c), s	4.9	2.0	0.0	0.0	12.1	12.2	0.4	0.0	5.9			
Prop In Lane	1.00		0.00	0.00		0.57	1.00		1.00			
Lane Grp Cap(c), veh/h	194	1585	0	0	481	459	749	0	667			
V/C Ratio(X)	0.80	0.43	0.00	0.00	0.80	0.81	0.02	0.00	0.34			
Avail Cap(c_a), veh/h	297	1955	0	0	563	538	749	0	667			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.9	1.9	0.0	0.0	20.4	20.4	10.2	0.0	11.8			
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.0	7.1	7.6	0.1	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.1	0.5	0.0	0.0	5.5	5.4	0.1	0.0	2.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	2.1	0.0	0.0	27.5	28.0	10.2	0.0	13.2			
LnGrp LOS	C	A	A	A	C	C	B	A	B			
Approach Vol, veh/h		835			755			248				
Approach Delay, s/veh		7.2			27.7			13.0				
Approach LOS		A			C			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		29.2		30.8			10.5	20.2				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		19.0		33.0			10.0	19.0				
Max Q Clear Time (g_c+I1), s		7.9		4.0			6.9	14.2				
Green Ext Time (p_c), s		1.1		5.2			0.1	2.0				

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 8
NORTH/SOUTH STREET: Orcutt Rd
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	188	65	66	12	28	71	84	394	104	33	582	17
Project Trips	0	0	0	0	0	0	0	29	0	0	10	0
GEOMETRY	L	TR		LTR			L	T TR		L	T TR	

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	1.0	1,600	188	188	0.12 *	0.12 *
NBT	1.0	1,600	65	65	0.08	0.08
NBR	0.0	0	66	66	0.00	0.00
SBL	0.0	0	12	12	0.00	0.00
SBT	1.0	1,600	28	28	0.07 *	0.07 *
SBR	0.0	0	71	71	0.00	0.00
EBL	1.0	1,600	84	84	0.05 *	0.05 *
EBT	2.0	3,200	394	423	0.16	0.16
EBR	0.0	0	104	104	0.00	0.00
WBL	1.0	1,600	33	33	0.02	0.02
WBT	2.0	3,200	582	592	0.19 *	0.19 *
WBR	0.0	0	17	17	0.00	0.00
N/S Critical Movements					0.19	0.19
E/W Critical Movements					0.24	0.24
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.53	0.53
Level of Service (LOS)					A	A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 8
NORTH/SOUTH STREET: Orcutt Rd
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	130	39	31	13	53	31	62	537	220	82	502	14
Project Trips	0	0	0	0	0	0	0	19	0	0	32	0
GEOMETRY	L	TR		LTR			L	T TR		L	T TR	

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	1.0	1,600	130	130	0.08 *	0.08 *
NBT	1.0	1,600	39	39	0.04	0.04
NBR	0.0	0	31	31	0.00	0.00
SBL	0.0	0	13	13	0.00	0.00
SBT	1.0	1,600	53	53	0.06 *	0.06 *
SBR	0.0	0	31	31	0.00	0.00
EBL	1.0	1,600	62	62	0.04	0.04
EBT	2.0	3,200	537	556	0.24 *	0.24 *
EBR	0.0	0	220	220	0.00	0.00
WBL	1.0	1,600	82	82	0.05 *	0.05 *
WBT	2.0	3,200	502	534	0.16	0.17
WBR	0.0	0	14	14	0.00	0.00
N/S Critical Movements					0.14	0.14
E/W Critical Movements					0.29	0.29
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.53	0.53
Level of Service (LOS)					A	A

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Cumulative and Cumulative + Project AM and PM Peak Hour

HCS7 All-Way Stop Control Report

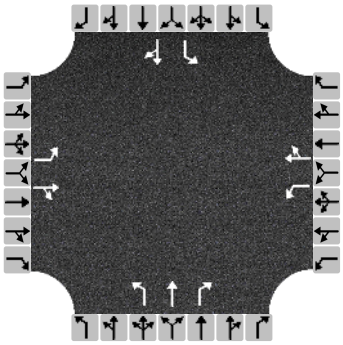
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Analysis Time Period (hrs)	0.25
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	30	190	5	25	105	155	5	15	15	170	15	30
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	33	212		27	283		5	16	16	185	49	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.029	0.188		0.024	0.251		0.005	0.014	0.014	0.164	0.043	
Final Departure Headway, hd (s)	6.84	6.32		6.73	5.80		7.60	7.09	6.37	7.02	6.04	
Final Degree of Utilization, x	0.062	0.372		0.051	0.455		0.011	0.032	0.029	0.361	0.082	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	4.54	4.02		4.43	3.50		5.30	4.79	4.07	4.72	3.74	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	33	212		27	283		5	16	16	185	49	
Capacity	526	570		535	621		474	508	565	513	596	
95% Queue Length, Q_{95} (veh)	0.2	1.7		0.2	2.4		0.0	0.1	0.1	1.6	0.3	
Control Delay (s/veh)	10.0	12.7		9.8	13.3		10.4	10.0	9.3	13.6	9.3	
Level of Service, LOS	A	B		A	B		B	B	A	B	A	
Approach Delay (s/veh)	12.3			13.0			9.7			12.7		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	12.6						B					

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HCS7 All-Way Stop Control Report

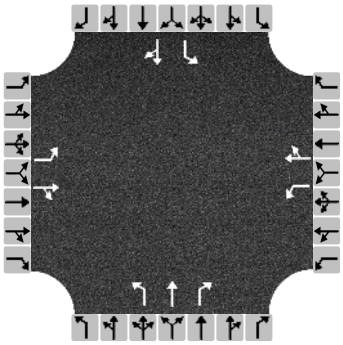
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Analysis Time Period (hrs)	0.25
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	30	190	5	25	105	160	5	15	15	171	15	30
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	33	212		27	288		5	16	16	186	49	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.029	0.188		0.024	0.256		0.005	0.014	0.014	0.165	0.043	
Final Departure Headway, hd (s)	6.86	6.34		6.73	5.80		7.62	7.11	6.40	7.04	6.06	
Final Degree of Utilization, x	0.062	0.373		0.051	0.464		0.012	0.032	0.029	0.364	0.082	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	4.56	4.04		4.43	3.50		5.32	4.81	4.10	4.74	3.76	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	33	212		27	288		5	16	16	186	49	
Capacity	525	568		535	620		472	506	563	511	594	
95% Queue Length, Q_{95} (veh)	0.2	1.7		0.2	2.5		0.0	0.1	0.1	1.6	0.3	
Control Delay (s/veh)	10.0	12.8		9.8	13.4		10.4	10.0	9.3	13.7	9.3	
Level of Service, LOS	B	B		A	B		B	B	A	B	A	
Approach Delay (s/veh)	12.4			13.1			9.8			12.8		
Approach LOS	B			B			A			B		
Intersection Delay, s/veh | LOS	12.7						B					

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HCS7 All-Way Stop Control Report

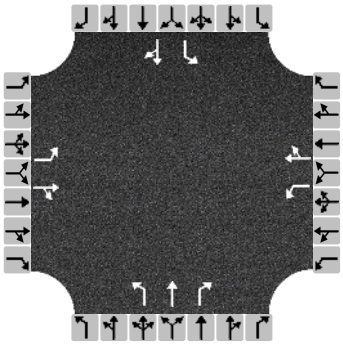
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Analysis Time Period (hrs)	0.25
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	01. SR1/BLACK RD
Jurisdiction	SB COUNTY
East/West Street	SR 1
North/South Street	BLACK RD
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	115	130	10	15	135	200	5	25	15	205	30	35
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	125	152		16	364		5	27	16	223	71	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.111	0.135		0.014	0.324		0.005	0.024	0.014	0.198	0.063	
Final Departure Headway, hd (s)	7.41	6.86		7.18	6.26		8.29	7.78	7.06	7.52	6.62	
Final Degree of Utilization, x	0.257	0.290		0.033	0.633		0.013	0.059	0.032	0.465	0.130	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	5.11	4.56		4.88	3.96		5.99	5.48	4.76	5.22	4.32	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	125	152		16	364		5	27	16	223	71	
Capacity	486	525		501	575		434	463	510	479	543	
95% Queue Length, Q_{95} (veh)	1.0	1.2		0.1	4.4		0.0	0.2	0.1	2.4	0.4	
Control Delay (s/veh)	12.7	12.3		10.1	19.1		11.1	11.0	10.0	16.6	10.3	
Level of Service, LOS	B	B		B	C		B	B	A	C	B	
Approach Delay (s/veh)	12.5			18.7			10.7			15.1		
Approach LOS	B			C			B			C		
Intersection Delay, s/veh | LOS	15.5						C					

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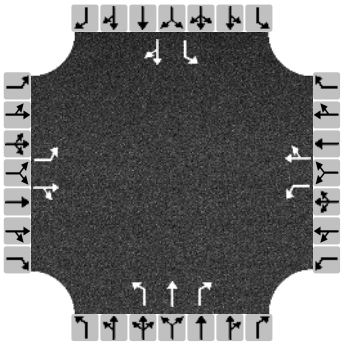
HCS7 All-Way Stop Control Report

General Information / Site Information

General Information		Site Information	
Analyst	DJL	Intersection	01. SR1/BLACK RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SR 1
Analysis Year	CUPR	North/South Street	BLACK RD
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	PM PEAK HOUR		
Project Description	KS 21		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	115	130	10	15	135	203	5	25	15	205	30	35
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	T	R	L	TR	
Flow Rate, v (veh/h)	125	152		16	367		5	27	16	223	71	
Percent Heavy Vehicles	4	4		4	4		4	4	4	4	4	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20	3.20	3.20	3.20	
Initial Degree of Utilization, x	0.111	0.135		0.014	0.327		0.005	0.024	0.014	0.198	0.063	
Final Departure Headway, hd (s)	7.42	6.87		7.19	6.26		8.31	7.79	7.08	7.53	6.64	
Final Degree of Utilization, x	0.258	0.290		0.033	0.638		0.013	0.059	0.032	0.466	0.130	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	5.12	4.57		4.89	3.96		6.01	5.49	4.78	5.23	4.34	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	125	152		16	367		5	27	16	223	71	
Capacity	485	524		501	575		433	462	509	478	542	
95% Queue Length, Q_{95} (veh)	1.0	1.2		0.1	4.5		0.0	0.2	0.1	2.4	0.4	
Control Delay (s/veh)	12.7	12.4		10.1	19.3		11.1	11.0	10.0	16.6	10.3	
Level of Service, LOS	B	B		B	C		B	B	B	C	B	
Approach Delay (s/veh)	12.5			18.9			10.7			15.1		
Approach LOS	B			C			B			C		
Intersection Delay, s/veh | LOS	15.6						C					

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HCS7 Two-Way Stop-Control Report

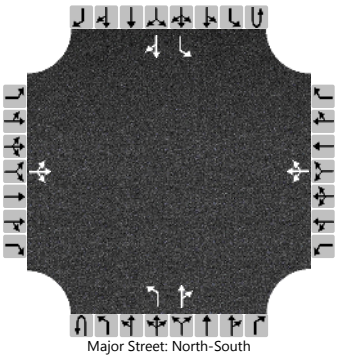
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Time Analyzed	AM PEAK HOUR
Intersection Orientation	North-South
Project Description	KS 21

Site Information

Intersection	02. SR 1/SOLOMON RD
Jurisdiction	SB COUNTY
East/West Street	SOLOMON RD
North/South Street	SR 1
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		5	5	0		15	5	115		5	200	5		105	225	0
Percent Heavy Vehicles (%)		3	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			11				147			5				114		
Capacity, c (veh/h)			281				664			1310				1334		
v/c Ratio			0.04				0.22			0.00				0.09		
95% Queue Length, Q_{95} (veh)			0.1				0.8			0.0				0.3		
Control Delay (s/veh)			18.3				12.0			7.8				8.0		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	18.3				12.0				0.2				2.5			
Approach LOS	C				B											

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HCS7 Two-Way Stop-Control Report

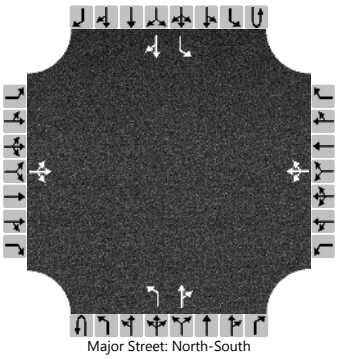
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Time Analyzed	AM PEAK HOUR
Intersection Orientation	North-South
Project Description	KS 21

Site Information

Intersection	02. SR 1/SOLOMON RD
Jurisdiction	SB COUNTY
East/West Street	SOLOMON RD
North/South Street	SR 1
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		5	5	0		15	5	123		5	218	5		116	278	0
Percent Heavy Vehicles (%)		3	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			11				155			5				126		
Capacity, c (veh/h)			236				627			1247				1312		
v/c Ratio			0.05				0.25			0.00				0.10		
95% Queue Length, Q_{95} (veh)			0.1				1.0			0.0				0.3		
Control Delay (s/veh)			21.0				12.6			7.9				8.0		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	21.0				12.6				0.2				2.4			
Approach LOS	C				B											

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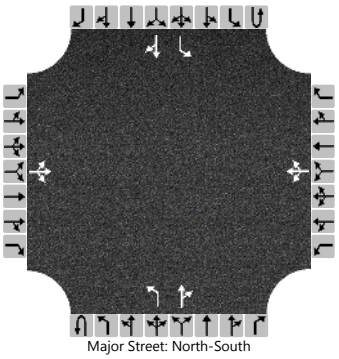
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	CUM	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		5	5	5		5	5	70		0	255	15		100	265	5
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			16				87			0				109		
Capacity, c (veh/h)			331				621			1257				1257		
v/c Ratio			0.05				0.14			0.00				0.09		
95% Queue Length, Q_{95} (veh)			0.2				0.5			0.0				0.3		
Control Delay (s/veh)			16.4				11.7			7.9				8.1		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	16.4				11.7				0.0				2.2			
Approach LOS	C				B											

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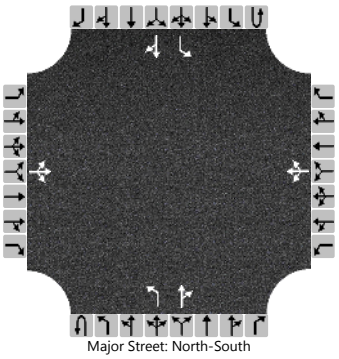
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	02. SR 1/SOLOMON RD
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	CUPR	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		5	5	5		5	5	97		0	315	15		116	300	5
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			16				116			0				126		
Capacity, c (veh/h)			261				578			1217				1189		
v/c Ratio			0.06				0.20			0.00				0.11		
95% Queue Length, Q_{95} (veh)			0.2				0.7			0.0				0.4		
Control Delay (s/veh)			19.7				12.8			8.0				8.4		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	19.7				12.8				0.0				2.3			
Approach LOS	C				B											

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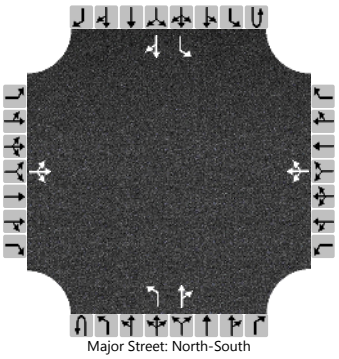
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	03. SR 1/CLARK AVE
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	CUM	North/South Street	SR 1
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	5	0		85	0	120		0	85	30		110	145	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				223			0				120		
Capacity, c (veh/h)			419				637			1410				1449		
v/c Ratio			0.01				0.35			0.00				0.08		
95% Queue Length, Q_{95} (veh)			0.0				1.6			0.0				0.3		
Control Delay (s/veh)			13.7				13.7			7.6				7.7		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.7				13.7				0.0				3.3			
Approach LOS	B				B											

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HCS7 Two-Way Stop-Control Report

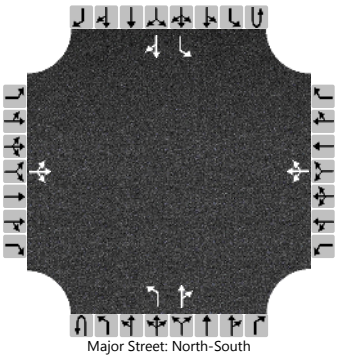
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Time Analyzed	AM PEAK HOUR
Intersection Orientation	North-South
Project Description	KS 21

Site Information

Intersection	03. SR 1/CLARK AVE
Jurisdiction	SB COUNTY
East/West Street	SOLOMON RD
North/South Street	SR 1
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	5	0		85	0	135		0	88	30		155	153	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				239			0				168		
Capacity, c (veh/h)			349				577			1400				1445		
v/c Ratio			0.02				0.41			0.00				0.12		
95% Queue Length, Q_{95} (veh)			0.0				2.0			0.0				0.4		
Control Delay (s/veh)			15.5				15.6			7.6				7.8		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	15.5				15.6				0.0				3.9			
Approach LOS	C				C											

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HCS7 Two-Way Stop-Control Report

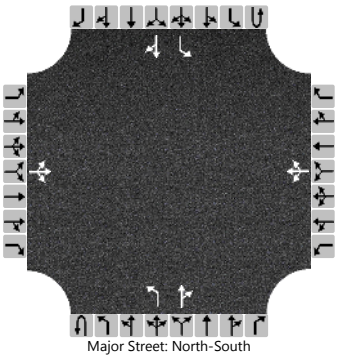
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Time Analyzed	PM PEAK HOUR
Intersection Orientation	North-South
Project Description	KS 21

Site Information

Intersection	03. SR 1/CLARK AVE
Jurisdiction	SB COUNTY
East/West Street	SOLOMON RD
North/South Street	SR 1
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	5	0		75	5	135		0	140	140		165	105	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				234			0				179		
Capacity, c (veh/h)			279				502			1463				1245		
v/c Ratio			0.02				0.47			0.00				0.14		
95% Queue Length, Q_{95} (veh)			0.1				2.4			0.0				0.5		
Control Delay (s/veh)			18.2				18.3			7.5				8.4		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	18.2				18.3				0.0				5.1			
Approach LOS	C				C											

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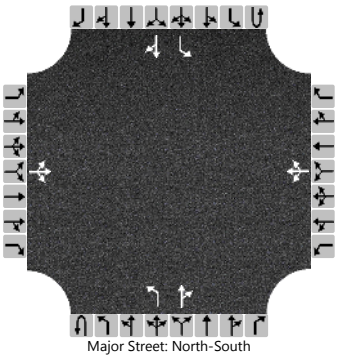
HCS7 Two-Way Stop-Control Report

General Information

Analyst	DJL	Intersection	03. SR 1/CLARK AVE
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	SOLOMON RD
Analysis Year	CUPR	North/South Street	SR 1
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	KS 21		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		0	5	0		75	5	186		0	149	140		195	110	0
Percent Heavy Vehicles (%)		4	4	4		4	4	4		4				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.14				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.24				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				289			0				212		
Capacity, c (veh/h)			242				495			1456				1235		
v/c Ratio			0.02				0.58			0.00				0.17		
95% Queue Length, Q_{95} (veh)			0.1				3.7			0.0				0.6		
Control Delay (s/veh)			20.2				22.0			7.5				8.5		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	20.2				22.0				0.0				5.4			
Approach LOS	C				C											

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HCS7 All-Way Stop Control Report

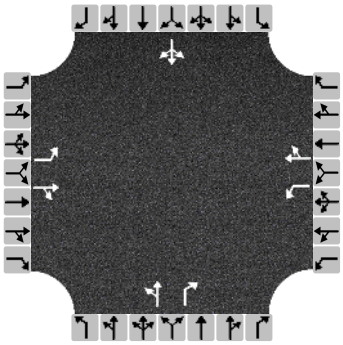
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Analysis Time Period (hrs)	1.00
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	20	180	105	45	190	55	80	50	45	95	70	45
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	20	285		45	245		130	45		210		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.018	0.253		0.040	0.218		0.116	0.040		0.187		
Final Departure Headway, hd (s)	6.80	6.03		6.82	6.15		6.99	5.97		6.52		
Final Degree of Utilization, x	0.038	0.478		0.085	0.419		0.252	0.075		0.380		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.50	3.73		4.52	3.85		4.69	3.67		4.52		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	20	285		45	245		130	45		210		
Capacity	530	597		528	585		515	603		552		
95% Queue Length, Q_{95} (veh)	0.1	2.7		0.3	2.1		1.0	0.2		1.8		
Control Delay (s/veh)	9.8	14.2		10.2	13.3		12.0	9.2		13.5		
Level of Service, LOS	A	B		B	B		B	A		B		
Approach Delay (s/veh)	13.9			12.8			11.3			13.5		
Approach LOS	B			B			B			B		
Intersection Delay, s/veh | LOS	13.0						B					

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HCS7 All-Way Stop Control Report

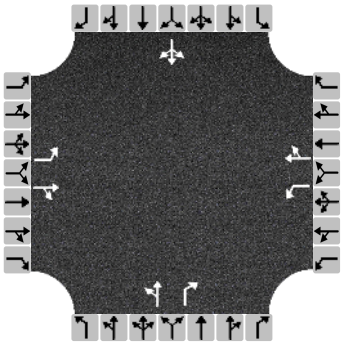
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Analysis Time Period (hrs)	1.00
Time Analyzed	AM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	20	247	105	45	204	55	80	50	45	95	70	45
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	20	352		45	259		130	45		210		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.018	0.313		0.040	0.230		0.116	0.040		0.187		
Final Departure Headway, hd (s)	6.89	6.17		7.00	6.34		7.29	6.28		6.80		
Final Degree of Utilization, x	0.038	0.604		0.088	0.456		0.263	0.078		0.397		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.59	3.87		4.70	4.04		4.99	3.98		4.80		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	20	352		45	259		130	45		210		
Capacity	522	583		514	568		494	574		530		
95% Queue Length, Q_{95} (veh)	0.1	4.4		0.3	2.5		1.1	0.3		1.9		
Control Delay (s/veh)	9.9	18.2		10.4	14.3		12.6	9.5		14.2		
Level of Service, LOS	A	C		B	B		B	A		B		
Approach Delay (s/veh)	17.7			13.8			11.8			14.2		
Approach LOS	C			B			B			B		
Intersection Delay, s/veh | LOS	14.9						B					

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HCS7 All-Way Stop Control Report

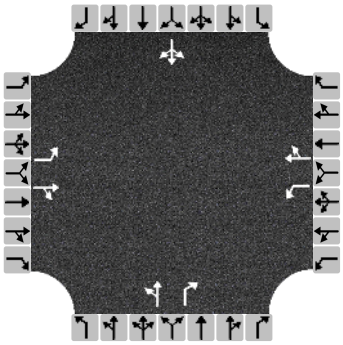
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Analysis Time Period (hrs)	1.00
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	45	220	125	75	225	80	65	70	85	90	80	50
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	45	345		75	305		135	85		220		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.040	0.307		0.067	0.271		0.120	0.076		0.196		
Final Departure Headway, hd (s)	7.33	6.56		7.35	6.66		7.64	6.69		7.20		
Final Degree of Utilization, x	0.092	0.629		0.153	0.564		0.287	0.158		0.440		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	5.03	4.26		5.05	4.36		5.34	4.39		5.20		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	45	345		75	305		135	85		220		
Capacity	491	549		490	541		471	538		500		
95% Queue Length, Q_{95} (veh)	0.3	4.8		0.5	3.8		1.2	0.6		2.3		
Control Delay (s/veh)	10.8	20.2		11.4	17.9		13.4	10.6		15.8		
Level of Service, LOS	B	C		B	C		B	B		C		
Approach Delay (s/veh)	19.1			16.6			12.3			15.8		
Approach LOS	C			C			B			C		
Intersection Delay, s/veh | LOS	16.5						C					

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HCS7 All-Way Stop Control Report

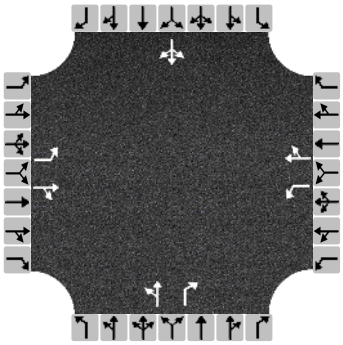
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Analysis Time Period (hrs)	1.00
Time Analyzed	PM PEAK HOUR
Project Description	KS 21

Site Information

Intersection	04. CLARK AVE/BROADWAY ST
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	BROADWAY ST
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	45	247	125	75	271	80	65	70	85	90	80	50
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	45	372		75	351		135	85		220		
Percent Heavy Vehicles	4	4		4	4		4	4		4		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.040	0.331		0.067	0.312		0.120	0.076		0.196		
Final Departure Headway, hd (s)	7.50	6.75		7.49	6.82		7.93	6.98		7.47		
Final Degree of Utilization, x	0.094	0.697		0.156	0.664		0.298	0.165		0.456		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	5.20	4.45		5.19	4.52		5.63	4.68		5.47		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	45	372		75	351		135	85		220		
Capacity	480	533		481	528		454	516		482		
95% Queue Length, Q_{95} (veh)	0.3	6.4		0.6	5.6		1.3	0.6		2.5		
Control Delay (s/veh)	11.0	24.6		11.6	22.7		14.0	11.1		16.7		
Level of Service, LOS	B	C		B	C		B	B		C		
Approach Delay (s/veh)	23.1			20.8			12.9			16.7		
Approach LOS	C			C			B			C		
Intersection Delay, s/veh | LOS	19.5						C					

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HCS7 Two-Way Stop-Control Report

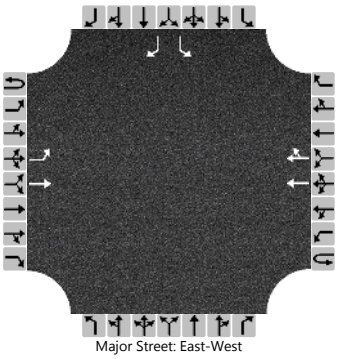
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	2	0		0	0	0		1	0	1
Configuration		L	T				T	TR						L		R
Volume (veh/h)	0	55	660				690	70						65		65
Percent Heavy Vehicles (%)	4	4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		55												65		65
Capacity, c (veh/h)		835												104		612
v/c Ratio		0.07												0.62		0.11
95% Queue Length, Q_{95} (veh)		0.2												4.1		0.4
Control Delay (s/veh)		9.6												92.8		11.6
Level of Service (LOS)		A												F		B
Approach Delay (s/veh)	0.7												52.2			
Approach LOS													F			

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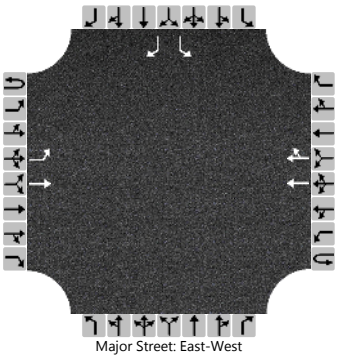
HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		Site Information	
Analyst	DJL	Intersection	05. CLARK AV/FOXENWOOD LN
Agency/Co.	STANTEC	Jurisdiction	SB COUNTY
Date Performed	6/27/2018	East/West Street	CLARK AVE
Analysis Year	CUPR	North/South Street	FOXENWOOD LN
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	1.00
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	KS 21		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	2	0		0	0	0		1	0	1
Configuration		L	T				T	TR						L		R
Volume (veh/h)	0	55	701				704	70						65		65
Percent Heavy Vehicles (%)	4	4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		55												65		65
Capacity, c (veh/h)		824												96		606
v/c Ratio		0.07												0.68		0.11
95% Queue Length, Q_{95} (veh)		0.2												4.8		0.4
Control Delay (s/veh)		9.7												113.8		11.7
Level of Service (LOS)		A												F		B
Approach Delay (s/veh)	0.7												62.7			
Approach LOS													F			

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HCS7 Two-Way Stop-Control Report

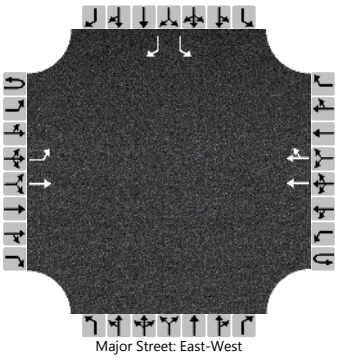
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUM
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	2	0		0	0	0		1	0	1
Configuration		L	T				T	TR						L		R
Volume (veh/h)	0	40	610				720	110						65		50
Percent Heavy Vehicles (%)	4	4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		40												65		50
Capacity, c (veh/h)		785												111		581
v/c Ratio		0.05												0.59		0.09
95% Queue Length, Q_{95} (veh)		0.2												3.7		0.3
Control Delay (s/veh)		9.8												81.0		11.8
Level of Service (LOS)		A												F		B
Approach Delay (s/veh)	0.6												50.9			
Approach LOS													F			

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HCS7 Two-Way Stop-Control Report

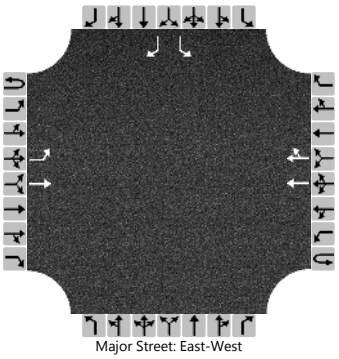
General Information

Analyst	DJL
Agency/Co.	STANTEC
Date Performed	6/27/2018
Analysis Year	CUPR
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	KS 21

Site Information

Intersection	05. CLARK AV/FOXENWOOD LN
Jurisdiction	SB COUNTY
East/West Street	CLARK AVE
North/South Street	FOXENWOOD LN
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	2	0		0	0	0		1	0	1
Configuration		L	T				T	TR						L		R
Volume (veh/h)	0	40	637				766	110						65		50
Percent Heavy Vehicles (%)	4	4												4		4
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.18												6.88		6.98
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.24												3.54		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		40												65		50
Capacity, c (veh/h)		754												99		561
v/c Ratio		0.05												0.66		0.09
95% Queue Length, Q_{95} (veh)		0.2												4.5		0.3
Control Delay (s/veh)		10.0												104.9		12.0
Level of Service (LOS)		B												F		B
Approach Delay (s/veh)	0.6												64.5			
Approach LOS													F			

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INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 6
NORTH/SOUTH STREET: Route 135 SB
EAST/WEST STREET: Clark Ave
SCENARIO: Cumulative
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	0	0	0	230	5	290	0	690	40	290	470	0
Project Trips	0	0	0	0	0	4	0	41	0	0	10	0
GEOMETRY					LT	R		T TR		L	TT	

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	0	0	0.00 *	0.00 *
NBT	0.0	0	0	0	0.00	0.00
NBR	0.0	0	0	0	0.00	0.00
SBL	0.0	0	230	230	0.00	0.00
SBT	1.0	1,600	5	5	0.15 *	0.15 *
SBR	1.0	(a) 1,600	290	294	0.18	0.18
EBL	0.0	0	0	0	0.00	0.00
EBT	2.0	3,200	690	731	0.23 *	0.24 *
EBR	0.0	0	40	40	0.00	0.00
WBL	1.0	1,600	290	290	0.18 *	0.18 *
WBT	2.0	3,200	470	480	0.15	0.15
WBR	0.0	0	0	0	0.00	0.00
N/S Critical Movements					0.15	0.15
E/W Critical Movements					0.41	0.42
Clearance Interval					0.10	0.10
ICU					0.66	0.67
Level of Service (LOS)					B	B

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:
(a) not critical due to RTOR.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	40	290	470	0	0	0	0	230	0	290
Future Volume (veh/h)	0	690	40	290	470	0	0	0	0	230	0	290
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	750	43	315	511	0				250	0	315
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	968	55	472	2186	0				448	0	399
Arrive On Green	0.00	0.28	0.28	0.18	0.41	0.00				0.25	0.00	0.25
Sat Flow, veh/h	0	3510	196	1781	3647	0				1781	0	1585
Grp Volume(v), veh/h	0	390	403	315	511	0				250	0	315
Grp Sat Flow(s),veh/h/ln	0	1777	1835	1781	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	12.1	12.1	9.9	5.6	0.0				7.3	0.0	11.1
Cycle Q Clear(g_c), s	0.0	12.1	12.1	9.9	5.6	0.0				7.3	0.0	11.1
Prop In Lane	0.00		0.11	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	503	520	472	2186	0				448	0	399
V/C Ratio(X)	0.00	0.77	0.78	0.67	0.23	0.00				0.56	0.00	0.79
Avail Cap(c_a), veh/h	0	503	520	472	2186	0				653	0	581
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.28	0.28	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.7	19.7	22.2	8.4	0.0				19.6	0.0	21.0
Incr Delay (d2), s/veh	0.0	11.1	10.8	1.0	0.1	0.0				1.1	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.1	6.2	4.2	1.8	0.0				2.9	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.8	30.5	23.2	8.5	0.0				20.6	0.0	25.5
LnGrp LOS	A	C	C	C	A	A				C	A	C
Approach Vol, veh/h		793			826						565	
Approach Delay, s/veh		30.7			14.1						23.4	
Approach LOS		C			B						C	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		19.9	21.0		19.1		40.9					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		11.9	14.1		13.1		7.6					
Green Ext Time (p_c), s		0.0	1.4		2.0		3.5					

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	731	40	290	480	0	0	0	0	230	0	290
Future Volume (veh/h)	0	731	40	290	480	0	0	0	0	230	0	290
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	795	43	315	522	0				250	0	315
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	971	53	472	2186	0				448	0	399
Arrive On Green	0.00	0.28	0.28	0.18	0.41	0.00				0.25	0.00	0.25
Sat Flow, veh/h	0	3522	185	1781	3647	0				1781	0	1585
Grp Volume(v), veh/h	0	412	426	315	522	0				250	0	315
Grp Sat Flow(s),veh/h/ln	0	1777	1837	1781	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	13.0	13.0	9.9	5.7	0.0				7.3	0.0	11.1
Cycle Q Clear(g_c), s	0.0	13.0	13.0	9.9	5.7	0.0				7.3	0.0	11.1
Prop In Lane	0.00		0.10	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	503	520	472	2186	0				448	0	399
V/C Ratio(X)	0.00	0.82	0.82	0.67	0.24	0.00				0.56	0.00	0.79
Avail Cap(c_a), veh/h	0	503	520	472	2186	0				653	0	581
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.26	0.26	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.1	20.1	22.2	8.5	0.0				19.6	0.0	21.0
Incr Delay (d2), s/veh	0.0	13.8	13.4	0.9	0.1	0.0				1.1	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.8	7.0	4.2	1.8	0.0				2.9	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.8	33.5	23.1	8.5	0.0				20.6	0.0	25.5
LnGrp LOS	A	C	C	C	A	A				C	A	C
Approach Vol, veh/h		838			837						565	
Approach Delay, s/veh		33.6			14.0						23.4	
Approach LOS		C			B						C	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		19.9	21.0		19.1		40.9					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		11.9	15.0		13.1		7.7					
Green Ext Time (p_c), s		0.0	1.0		2.0		3.6					

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 6
NORTH/SOUTH STREET: Route 135 SB
EAST/WEST STREET: Clark Ave
SCENARIO: Cumulative
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	0	0	0	475	5	315	0	640	35	195	500	0
Project Trips	0	0	0	0	0	14	0	27	0	0	32	0
GEOMETRY					LT	R		T TR		L	TT	

Move-ment	**Level of Service Calculations**					
	Lanes		**Volume**		**V/C Ratio**	
	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	0	0	0.00 *	0.00 *
NBT	0.0	0	0	0	0.00	0.00
NBR	0.0	0	0	0	0.00	0.00
SBL	0.0	0	475	475	0.00	0.00
SBT	1.0	1,600	5	5	0.30 *	0.30 *
SBR	1.0	1,600	315	329	0.20	0.21
EBL	0.0	0	0	0	0.00	0.00
EBT	2.0	3,200	640	667	0.21 *	0.22 *
EBR	0.0	0	35	35	0.00	0.00
WBL	1.0	1,600	195	195	0.12 *	0.12 *
WBT	2.0	3,200	500	532	0.16	0.17
WBR	0.0	0	0	0	0.00	0.00
N/S Critical Movements					0.30	0.30
E/W Critical Movements					0.33	0.34
Clearance Interval					0.10	0.10
ICU					0.73	0.74
Level of Service (LOS)					C	C

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	640	35	195	500	0	0	0	0	475	0	315
Future Volume (veh/h)	0	640	35	195	500	0	0	0	0	475	0	315
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	696	38	212	543	0				516	0	342
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	971	53	331	1903	0				590	0	525
Arrive On Green	0.00	0.28	0.28	0.12	0.36	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	3520	187	1781	3647	0				1781	0	1585
Grp Volume(v), veh/h	0	361	373	212	543	0				516	0	342
Grp Sat Flow(s),veh/h/ln	0	1777	1837	1781	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	11.0	11.0	6.8	6.5	0.0				16.4	0.0	11.0
Cycle Q Clear(g_c), s	0.0	11.0	11.0	6.8	6.5	0.0				16.4	0.0	11.0
Prop In Lane	0.00		0.10	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	503	520	331	1903	0				590	0	525
V/C Ratio(X)	0.00	0.72	0.72	0.64	0.29	0.00				0.88	0.00	0.65
Avail Cap(c_a), veh/h	0	503	520	331	1903	0				653	0	581
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.59	0.59	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.3	19.3	24.4	11.0	0.0				18.9	0.0	17.1
Incr Delay (d2), s/veh	0.0	8.5	8.2	2.5	0.2	0.0				11.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.3	5.4	3.0	2.4	0.0				7.9	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.8	27.6	26.8	11.3	0.0				30.7	0.0	19.4
LnGrp LOS	A	C	C	C	B	A				C	A	B
Approach Vol, veh/h		734			755						858	
Approach Delay, s/veh		27.7			15.6						26.2	
Approach LOS		C			B						C	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		15.1	21.0		23.9		36.1					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		8.8	13.0		18.4		8.5					
Green Ext Time (p_c), s		0.0	1.7		1.5		3.7					

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	667	35	195	532	0	0	0	0	475	0	315
Future Volume (veh/h)	0	667	35	195	532	0	0	0	0	475	0	315
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	725	38	212	578	0				516	0	342
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	973	51	331	1903	0				590	0	525
Arrive On Green	0.00	0.28	0.28	0.12	0.36	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	3528	180	1781	3647	0				1781	0	1585
Grp Volume(v), veh/h	0	375	388	212	578	0				516	0	342
Grp Sat Flow(s),veh/h/ln	0	1777	1838	1781	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	11.5	11.5	6.8	7.0	0.0				16.4	0.0	11.0
Cycle Q Clear(g_c), s	0.0	11.5	11.5	6.8	7.0	0.0				16.4	0.0	11.0
Prop In Lane	0.00		0.10	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	503	521	331	1903	0				590	0	525
V/C Ratio(X)	0.00	0.74	0.75	0.64	0.30	0.00				0.88	0.00	0.65
Avail Cap(c_a), veh/h	0	503	521	331	1903	0				653	0	581
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.59	0.59	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.5	19.5	24.4	11.2	0.0				18.9	0.0	17.1
Incr Delay (d2), s/veh	0.0	9.6	9.4	2.5	0.2	0.0				11.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.6	5.8	3.0	2.6	0.0				7.9	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.2	28.9	26.8	11.4	0.0				30.7	0.0	19.4
LnGrp LOS	A	C	C	C	B	A				C	A	B
Approach Vol, veh/h		763			790						858	
Approach Delay, s/veh		29.0			15.6						26.2	
Approach LOS		C			B						C	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		15.1	21.0		23.9		36.1					
Change Period (Y+Rc), s		4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s		9.0	17.0		22.0		30.0					
Max Q Clear Time (g_c+I1), s		8.8	13.5		18.4		9.0					
Green Ext Time (p_c), s		0.0	1.6		1.5		3.9					

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 7
NORTH/SOUTH STREET: Route 135 NB
EAST/WEST STREET: Clark Ave
SCENARIO: Cumulative
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	25	5	115	0	0	0	210	710	0	0	740	355
Project Trips	0	0	0	0	0	0	12	29	0	0	10	0
GEOMETRY	LT TR						L	TT		T TR		

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	25	25	0.00	0.00
NBT	2.0	3,200	5	5	0.05 *	0.05 *
NBR	0.0	0	115	115	0.00	0.00
SBL	0.0	0	0	0	0.00 *	0.00 *
SBT	0.0	0	0	0	0.00	0.00
SBR	0.0	0	0	0	0.00	0.00
EBL	1.0	1,600	210	222	0.13 *	0.14 *
EBT	2.0	3,200	710	739	0.22	0.23
EBR	0.0	0	0	0	0.00	0.00
WBL	0.0	0	0	0	0.00	0.00
WBT	2.0	3,200	740	750	0.34 *	0.35 *
WBR	0.0	0	355	355	0.00	0.00
N/S Critical Movements					0.05	0.05
E/W Critical Movements					0.47	0.49
Clearance Interval					0.10	0.10
ICU					0.62	0.64
Level of Service (LOS)					B	B

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	710	0	0	740	355	25	0	115	0	0	0
Future Volume (veh/h)	210	710	0	0	740	355	25	0	115	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	228	772	0	0	804	386	27	0	125			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	614	2705	0	0	816	390	188	0	167			
Arrive On Green	0.69	1.00	0.00	0.00	0.35	0.35	0.11	0.00	0.11			
Sat Flow, veh/h	1781	3647	0	0	2425	1115	1781	0	1585			
Grp Volume(v), veh/h	228	772	0	0	612	578	27	0	125			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1670	1781	0	1585			
Q Serve(g_s), s	3.2	0.0	0.0	0.0	20.5	20.7	0.8	0.0	4.6			
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	20.5	20.7	0.8	0.0	4.6			
Prop In Lane	1.00		0.00	0.00		0.67	1.00		1.00			
Lane Grp Cap(c), veh/h	614	2705	0	0	622	584	188	0	167			
V/C Ratio(X)	0.37	0.29	0.00	0.00	0.98	0.99	0.14	0.00	0.75			
Avail Cap(c_a), veh/h	614	2705	0	0	622	584	475	0	423			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	6.6	0.0	0.0	0.0	19.3	19.4	24.4	0.0	26.1			
Incr Delay (d2), s/veh	0.2	0.2	0.0	0.0	32.4	34.7	0.3	0.0	6.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.0	0.0	13.0	12.6	0.3	0.0	1.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	0.2	0.0	0.0	51.7	54.1	24.7	0.0	32.6			
LnGrp LOS	A	A	A	A	D	D	C	A	C			
Approach Vol, veh/h		1000			1190			152				
Approach Delay, s/veh		1.7			52.9			31.2				
Approach LOS		A			D			C				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		10.3		49.7			24.7	25.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		6.6		2.0			5.2	22.7				
Green Ext Time (p_c), s		0.3		6.3			0.3	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			29.6
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	739	0	0	750	355	25	0	115	0	0	0
Future Volume (veh/h)	210	739	0	0	750	355	25	0	115	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	228	803	0	0	815	386	27	0	125			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	614	2705	0	0	820	387	188	0	167			
Arrive On Green	0.69	1.00	0.00	0.00	0.35	0.35	0.11	0.00	0.11			
Sat Flow, veh/h	1781	3647	0	0	2437	1105	1781	0	1585			
Grp Volume(v), veh/h	228	803	0	0	617	584	27	0	125			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1671	1781	0	1585			
Q Serve(g_s), s	3.2	0.0	0.0	0.0	20.8	20.9	0.8	0.0	4.6			
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	20.8	20.9	0.8	0.0	4.6			
Prop In Lane	1.00		0.00	0.00		0.66	1.00		1.00			
Lane Grp Cap(c), veh/h	614	2705	0	0	622	585	188	0	167			
V/C Ratio(X)	0.37	0.30	0.00	0.00	0.99	1.00	0.14	0.00	0.75			
Avail Cap(c_a), veh/h	614	2705	0	0	622	585	475	0	423			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.60	0.60	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	6.6	0.0	0.0	0.0	19.4	19.5	24.4	0.0	26.1			
Incr Delay (d2), s/veh	0.2	0.2	0.0	0.0	34.3	36.8	0.3	0.0	6.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.0	0.0	13.4	13.1	0.3	0.0	1.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.8	0.2	0.0	0.0	53.7	56.2	24.7	0.0	32.6			
LnGrp LOS	A	A	A	A	D	E	C	A	C			
Approach Vol, veh/h		1031			1201			152				
Approach Delay, s/veh		1.6			54.9			31.2				
Approach LOS		A			D			C				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		10.3		49.7			24.7	25.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		6.6		2.0			5.2	22.9				
Green Ext Time (p_c), s		0.3		6.6			0.3	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 7
NORTH/SOUTH STREET: Route 135 NB
EAST/WEST STREET: Clark Ave
SCENARIO: Cumulative
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	40	0	280	0	0	0	190	925	0	0	655	230
Project Trips	0	0	0	0	0	0	8	19	0	0	32	0
GEOMETRY	LT TR						L	TT		T TR		

	Level of Service Calculations					
	Lanes		**Volume**		**V/C Ratio**	
Move-ment	Lane	Capacity	Base	Project	Base	Project
NBL	0.0	0	40	40	0.00	0.00
NBT	2.0	3,200	0	0	0.10 *	0.10 *
NBR	0.0	0	280	280	0.00	0.00
SBL	0.0	0	0	0	0.00 *	0.00 *
SBT	0.0	0	0	0	0.00	0.00
SBR	0.0	0	0	0	0.00	0.00
EBL	1.0	1,600	190	198	0.12 *	0.12 *
EBT	2.0	3,200	925	944	0.29	0.30
EBR	0.0	0	0	0	0.00	0.00
WBL	0.0	0	0	0	0.00	0.00
WBT	2.0	3,200	655	687	0.28 *	0.29 *
WBR	0.0	0	230	230	0.00	0.00
N/S Critical Movements					0.10	0.10
E/W Critical Movements					0.40	0.41
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.60	0.61
Level of Service (LOS)					A	B

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	925	0	0	655	230	40	0	280	0	0	0
Future Volume (veh/h)	190	925	0	0	655	230	40	0	280	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	207	1005	0	0	712	250	43	0	304			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	404	2287	0	0	903	317	397	0	354			
Arrive On Green	0.30	0.86	0.00	0.00	0.35	0.35	0.22	0.00	0.22			
Sat Flow, veh/h	1781	3647	0	0	2672	905	1781	0	1585			
Grp Volume(v), veh/h	207	1005	0	0	491	471	43	0	304			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1707	1781	0	1585			
Q Serve(g_s), s	5.8	3.9	0.0	0.0	14.9	14.9	1.2	0.0	11.1			
Cycle Q Clear(g_c), s	5.8	3.9	0.0	0.0	14.9	14.9	1.2	0.0	11.1			
Prop In Lane	1.00		0.00	0.00		0.53	1.00		1.00			
Lane Grp Cap(c), veh/h	404	2287	0	0	622	598	397	0	354			
V/C Ratio(X)	0.51	0.44	0.00	0.00	0.79	0.79	0.11	0.00	0.86			
Avail Cap(c_a), veh/h	404	2287	0	0	622	598	475	0	423			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.2	1.8	0.0	0.0	17.5	17.5	18.6	0.0	22.4			
Incr Delay (d2), s/veh	0.6	0.4	0.0	0.0	9.8	10.2	0.1	0.0	14.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	0.8	0.0	0.0	7.1	6.9	0.5	0.0	5.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	2.2	0.0	0.0	27.3	27.7	18.7	0.0	36.7			
LnGrp LOS	B	A	A	A	C	C	B	A	D			
Approach Vol, veh/h		1212			962			347				
Approach Delay, s/veh		5.0			27.5			34.4				
Approach LOS		A			C			C				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		17.4		42.6			17.6	25.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		13.1		5.9			7.8	16.9				
Green Ext Time (p_c), s		0.4		8.6			0.2	2.3				

Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	944	0	0	687	230	40	0	280	0	0	0
Future Volume (veh/h)	190	944	0	0	687	230	40	0	280	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	207	1026	0	0	747	250	43	0	304			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	404	2287	0	0	915	306	397	0	354			
Arrive On Green	0.30	0.86	0.00	0.00	0.35	0.35	0.22	0.00	0.22			
Sat Flow, veh/h	1781	3647	0	0	2708	875	1781	0	1585			
Grp Volume(v), veh/h	207	1026	0	0	508	489	43	0	304			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1713	1781	0	1585			
Q Serve(g_s), s	5.8	4.1	0.0	0.0	15.6	15.6	1.2	0.0	11.1			
Cycle Q Clear(g_c), s	5.8	4.1	0.0	0.0	15.6	15.6	1.2	0.0	11.1			
Prop In Lane	1.00		0.00	0.00		0.51	1.00		1.00			
Lane Grp Cap(c), veh/h	404	2287	0	0	622	599	397	0	354			
V/C Ratio(X)	0.51	0.45	0.00	0.00	0.82	0.82	0.11	0.00	0.86			
Avail Cap(c_a), veh/h	404	2287	0	0	622	599	475	0	423			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.54	0.54	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.2	1.8	0.0	0.0	17.7	17.7	18.6	0.0	22.4			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	11.3	11.7	0.1	0.0	14.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	0.8	0.0	0.0	7.6	7.4	0.5	0.0	5.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	2.2	0.0	0.0	29.1	29.4	18.7	0.0	36.7			
LnGrp LOS	B	A	A	A	C	C	B	A	D			
Approach Vol, veh/h		1233			997			347				
Approach Delay, s/veh		5.0			29.2			34.4				
Approach LOS		A			C			C				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		17.4		42.6			17.6	25.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		16.0		36.0			11.0	21.0				
Max Q Clear Time (g_c+I1), s		13.1		6.1			7.8	17.6				
Green Ext Time (p_c), s		0.4		8.8			0.2	2.0				

Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 8
NORTH/SOUTH STREET: Orcutt Rd
EAST/WEST STREET: Clark Ave
SCENARIO: Cumulative
TIME PERIOD: AM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak	255	75	80	50	50	95	95	700	125	50	775	45
Project Trips	0	0	0	0	0	0	0	29	0	0	10	0
GEOMETRY	L	TR		LTR			L	T TR		L	T TR	

Move-ment	**Level of Service Calculations**					
	Lanes		**Volume**		**V/C Ratio**	
	Lane	Capacity	Base	Project	Base	Project
NBL	1.0	1,600	255	255	0.16 *	0.16 *
NBT	1.0	1,600	75	75	0.10	0.10
NBR	0.0	0	80	80	0.00	0.00
SBL	0.0	0	50	50	0.00	0.00
SBT	1.0	1,600	50	50	0.12 *	0.12 *
SBR	0.0	0	95	95	0.00	0.00
EBL	1.0	1,600	95	95	0.06 *	0.06 *
EBT	2.0	3,200	700	729	0.26	0.27
EBR	0.0	0	125	125	0.00	0.00
WBL	1.0	1,600	50	50	0.03	0.03
WBT	2.0	3,200	775	785	0.26 *	0.26 *
WBR	0.0	0	45	45	0.00	0.00
N/S Critical Movements					0.28	0.28
E/W Critical Movements					0.32	0.32
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.70	0.70
Level of Service (LOS)					B	B

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

INTERSECTION CAPACITY UTILIZATION

INTERSECTION NUMBER: 8
NORTH/SOUTH STREET: Orcutt Rd
EAST/WEST STREET: Clark Ave
SCENARIO: Existing
TIME PERIOD: PM Peak Hour
COUNT DATE: 5/23/18
WORK ORDER #: 2064133400

VOLUMES	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
PM Peak	190	55	45	40	75	55	75	865	265	115	695	40
Project Trips	0	0	0	0	0	0	0	19	0	0	32	0
GEOMETRY	L	TR		LTR			L	T TR		L	T TR	

Move-ment	**Level of Service Calculations**					
	Lanes		**Volume**		**V/C Ratio**	
	Lane	Capacity	Base	Project	Base	Project
NBL	1.0	1,600	190	190	0.12 *	0.12 *
NBT	1.0	1,600	55	55	0.06	0.06
NBR	0.0	0	45	45	0.00	0.00
SBL	0.0	0	40	40	0.00	0.00
SBT	1.0	1,600	75	75	0.11 *	0.11 *
SBR	0.0	0	55	55	0.00	0.00
EBL	1.0	1,600	75	75	0.05	0.05
EBT	2.0	3,200	865	884	0.35 *	0.36 *
EBR	0.0	0	265	265	0.00	0.00
WBL	1.0	1,600	115	115	0.07 *	0.07 *
WBT	2.0	3,200	695	727	0.23	0.24
WBR	0.0	0	40	40	0.00	0.00
N/S Critical Movements					0.23	0.23
E/W Critical Movements					0.42	0.43
Right Turn Critical Movement					0.00	0.00
Clearance Interval					0.10	0.10
ICU					0.75	0.76
Level of Service (LOS)					C	C

Notes: V/C - Volume to Capacity Ratio
Right Turn Conditions:

Appendix L

Basin Hydrology Reports and Stormwater Control Plans

TO: Anthony Wells
Orcutt Rancho, LLC

FROM: Kear Groundwater
P.O. Box 2601
Santa Barbara, CA 93120-2601

DATE: February 5, 2019

SUBJECT: *Anticipated Groundwater Quality and Available Records from Proximal Wells Orcutt Community Plan Key Site 21, Portion B*

Dear Mr. Wells,

Kear Groundwater (KG) presents this brief letter discussing the approach to optimize water quality from the planned "Primary Well" and "Backup Well" at Portion B of the Orcutt Community Plan's Key Site 21. Herein we also discuss available water quality records from existing groundwater wells in the area.

The two planned wells, likely nearly-identical in construction, will serve as the redundant/backup water supply for the community as required by the Title 22 Section 64554(c) of the California Code of Regulations. The wells are to be located in close proximity with each other (approximately 50 lateral feet of separation) in the northern portion of Key Site 21, just west of the Rancho Maria Golf Course entry road and about 200 feet south of Cabrillo Highway. The 10-inch-diameter, HSLA-steel-cased wells are planned to extend to 700 feet below ground surface, with 0.090-inch Ful-Flo louvered perforations anticipated to be interspersed between about 265 to 675 feet. A cement seal is planned to extend from ground surface to at least 150 feet. Local groundwater is mostly stored as semi-confined to confined aquifers within interconnected lenses of sand and gravel of the weakly-consolidated Paso Robles Formation.

Recent (2012) water quality data (via the United States Geological Survey's [USGS] National Water Information System) from the nearby, active, 600-foot-deep Rancho Maria Golf Course well (State Well Number [SWN] 09N/34W-8L02), expected to be similar to if not slightly poorer than the planned primary and backup wells, reveal a calcium-sulfate groundwater character with a total dissolved solids (TDS) concentration of 615 mg/L. The 12-inch-diameter golf course well is steel-cased (likely mild steel) with a 50-foot cement seal.

The water quality at the -8L02 well is similar to that reported at a 331-foot-deep, actively USGS-monitored well over two miles from the Key Site 21 (SWN 09N/34W-3A02S), with water quality samples from 2002 through 2018 revealing TDS concentrations between 693 and 830 mg/L.

However, historic quality records (from 1951 to 1975), available from the Department of Water Resources' [DWR] Water Data Library and the USGS National Water Information System, include at least 11 wells with <600 mg/L TDS concentrations (between 233 and 587 mg/L). These data are summarized in Table 1. It is important to note that, with time, TDS concentrations are observed to fluctuate more than 200 mg/L in a single well.

Additionally, more recent water quality data available from the State Water Resources Control Board (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html) show some wells (SWNs 08N/32W-29R04, 08N/32W-28M02?) that are also within the Paso Robles Formation with TDS concentrations between 290 and 460 mg/L from 2013 to 2017.

TABLE 1: Proximal <600 mg/L TDS Water Quality Records				
State Well Number	**Depth (Feet BGS)**	**Approx. Distance Range from Site (Miles)**	**Sample Date**	**Total Dissolved Solids (mg/L)**
09N34W-06K03S[a]	*Unknown*	<1	7-Oct-60	364
09N34W-08C01S[a]	*190 (Well)*	<1	20-Sep-75	434
09N34W-08H01S[a]	*200 (Bore)*	<1	31-Mar-70	582
			8-Sep-70	538
			15-Mar-71	576
			17-Sep-71	342
			9-Mar-72	351
			15-May-75	344
09N34W-08H04S[a]	*562 (Well)*	<1	9-Jul-65	585
			8-Nov-65	587
			12-Apr-66	520
			20-Oct-66	580
			23-May-67	518
			13-Oct-67	528
			3-May-68	578
			20-Sep-68	334
			16-May-69	342
			28-Sep-69	325
			31-Mar-70	584
			8-Sep-70	541
			15-Mar-71	579
			17-Sep-71	343
			9-Mar-72	353
09N34W-09E01S[a,b]	*377 (Bore)*	<1	4-Aug-53	461
			7-May-58	424
			21-Apr-59	408
			16-Nov-60	452
			9-Oct-61	415
			17-Jul-63	464
			15-Oct-63	379
			7-May-64	392
			7-Oct-64	447
09N34W-03N01S[a]	*190 (Well)*	1 to 2	1-Oct-69	233
09N34W-09J01S[a]	*216 (Well)*	1 to 2	19-May-54	426
09N34W-10D02S[a]	*209 (Well)*	1 to 2	23-Sep-58	281
			27-Sep-75	283
10N34W-31L01S[b]	*Unknown*	>2	9-Aug-51	456
			18-Nov-60	322
10N35W-35G01S[a,b]	*196 (Bore)*	>2	9-Aug-51	426
			27-Sep-75	487
10N35W-35J01S[a]	*105 (Bore)*	>2	7-Oct-60	373

[a]USGS NWIS (Calculated TDS)

[b]DWR Water Data Library (Filterable Residue TDS)

Santa Barbara County policy WAT-O-5 requires water used to serve new development in Orcutt to have TDS concentrations of no greater than 425 mg/L, or about a 30% reduction from the concentrations observed in the -8L02 well.

Therefore, to optimize water quality in the planned new wells, modern drilling, analysis, and well construction methods will be implemented.

In addition to detailed geologic logging of drill cuttings and a full suite of geophysical surveys to identify the best/freshest groundwater aquifers, a series of Aquifer Zone Isolation Tests (AZITs) can also be conducted in the pilot boreholes in order to provide a vertical representation of water quality, reducing the potential for quality issues with the final pumped blends. Each test typically consists of a 20-ft long perforated tool at the end of the drilling pipe string, which is surrounded in the annulus by a pea gravel pack from at least 10 feet above and below the top of perforations and isolated with bentonite seals. The zones are first airlifted to clear drilling fluids and then discharged with a submersible pump, providing representative groundwater quality samples from target aquifers.

Using the geologic, geophysical, and water quality data, the wells will be designed and constructed with discrete perforation intervals adjacent to the best quality aquifer materials. Should zones between perforations indicate poor quality groundwater, intermediate cement or clay seals can be installed to prevent poorer quality water from entering the production stream. After development, step-drawdown and constant-rate pumping tests will be conducted at the wells, with water quality samples collected at various rates (step-drawdown) and durations (constant-rate) to help optimize the final blend of water quality from the wells through its operational program.

Finally, if the produced quality does exceed the 425 mg/L standard (which remains a possibility), a reverse-osmosis (RO) above-ground treatment facility could be implemented. As observed at local wells, it is also possible that this quality will fluctuate to some degree with time and the standard could be exceeded in the future. The RO facility would divert the high-quality stream to the community and likely store then transport the brine solution stream for either (1) offsite disposal at an appropriate water discharge facility or, preferably, (2) onsite usage, likely for irrigation with salt-tolerant grass or other plant species. The RO system would be designed and engineered in the future as needed.

As a simple mass balance calculation, and assuming a final produced quality potentially as high as 600 mg/L, an RO system could produce 80 liters of 425 mg/L water and 20 liters of 1300 mg/L water for every 100 liters of influent. The proposed wells are likely to be capable of pumping in excess of an additional 20 percent of the proposed project drinking water demand within the gross project demand of 176.6 acre-ft per year without any short or long-term effects on potential supply, accounting for bifurcating a production stream to allow for treatment. Many plant species can tolerate upwards of 1500 mg/L TDS irrigation water.

We trust that this evaluation meets the needs of current planning processes. We must emphasize that while existing available data indicate the potential to meet the County policy, only via testing of field conditions can water quality be ultimately known. Discretized modern well design and construction can result in an optimal water quality produced, and a treatment plan (if necessary) can further render the development feasible.

Please do not hesitate to contact us with any questions.

Best Regards,

Jordan Kear
Principal Hydrogeologist
Professional Geologist No. 6960
California Certified Hydrogeologist No. 749

Timothy Becker
Professional Geologist No. 9589

TO: Anthony Wells
Orcutt Rancho, LLC

FROM: Jordan Kear, P.G., C.Hg.
Kear Groundwater
P.O. Box 2601
Santa Barbara, CA 93120-2601

DATE: February 2, 2018

SUBJECT: *Water Well Feasibility for Orcutt Community Plan Key Site 21, Portion B*

Dear Mr. Wells,

This memorandum provides Kear Groundwater's (KG) evaluation of water well feasibility and recommended approach for groundwater supply development at "Portion B" (APN 113-250-015) of the Orcutt Community Plan's Key Site 21. The site is shared with the Rancho Maria Golf Course in the Santa Maria Valley, Santa Barbara County, California (Figure 1).

Our involvement with the project, conducted at your request, was to perform a review of available hydrogeologic information and evaluate water well feasibility and potential future drilling locations within Portion B. KG delivered a preliminary memorandum on July 15, 2017, with a follow-up well interference modeling discussion on July 26, 2017 and an additional addendum on October 5, 2017.

To comply with the requirement for a redundant/backup water supply (per the Title 22 Section 64554(c) of the California Code of Regulations), KG recommends drilling two nearly identical water supply wells (designated the "Primary Well" and the "Backup Well") near the northern extent of Portion B (Figure 2). Boreholes would first penetrate through the surficial dune sands and the Orcutt Formation from ground surface to approximately 200 feet below ground surface (bgs), followed by the underlying Paso Robles Formation to the total recommended exploration depths of 700 ft bgs. This depth is common for proximal modern water wells per available records.

The Paso Robles Formation is considered the principal target for groundwater development at the site and continues for about 1500 ft below the recommended exploration depths, reaching its maximum thickness along the Santa Maria Valley Syncline (mapped about one-third mile to the

northeast and locally sub-parallel to the Cabrillo Highway/California State Route 1). The recommended northern locations for the Primary and Backup Wells reflect a combination of:

(1) closest proximity to the syncline axis, the valley's dominant geologic structure

(2) logistical considerations, including golf course operations and planned development.

When equipped with 10-inch-diameter casings, pumps, and power, wells at this depth and location would appear to be capable of producing upwards of several hundred gallons per minute (gpm) under current hydrologic conditions. Each well would individually be capable of meeting the anticipated project requirements (with a gross demand of 176.7 acre-ft per year). Construction of the two wells should be conducted on a single driller's mobilization to benefit from an economy of scale. Concurrent casing and material selection would also be streamlined, as well as testing and development of the two wells.

A summary of our efforts, findings, conclusions, and more detailed recommendations follows.

Available Well Records

KG accessed available water well records from a number of sources, including the Santa Barbara County Environmental Health Services (via parcel-by-parcel public review requests), the Department of Water Resources (via the Water Data Library and the Well Completion Report Map Application), the United States Geologic Survey (via the National Water Information System), as well as directly from local water well drillers and our in-house database. Oil well records were also reviewed and accessed from the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (via the Well Finder). Existing local geologic cross-sections are available from the USGS' Professional Paper 222 (Woodring and Bramlette, 1950) and Water Supply Paper 1000 (Worts, 1951).

Hydrogeologic Overview

The 12.48-acre Portion B of Key Site 21 is situated within the Santa Maria Valley near the northeast foothills of the Casmalia Hills. Portion B is located within the Santa Maria River Valley Groundwater Basin ("Santa Maria Basin," DWR Bulletin 118, Basin Number 3-12). The 288-square-mile Santa Maria Basin is bounded to the southwest by the Casmalia Hills near Portion B, where bedrock formations are exposed to ground surface as part of the anticlinal fold that forms the Casmalia Hills Oil Field. Locally, these strata are more steeply dipping to the north-northwest (north limb of anticline) than at many other locations within the Santa Maria

Basin. Portion B is within the approximately 1.75-mile-wide band between the Basin's southwest boundary and the synclinal axis where aquifer materials are the deepest/thickest.

Water rights within the Santa Maria Basin have been adjudicated since 2008. The Superior Court of California, County of Santa Clara, passed down the Stipulation of the Santa Maria Groundwater Basin Litigation in 2005 in order to ensure the Basin's long-term sustainability. The Water Manager/Watermaster is Luhdorff and Scalmanini, Consulting Engineers (LSCE). LSCE follows a monitoring program as required by the Stipulation that includes assessment of groundwater conditions (levels and quality), land/water use, and quantities utilized. Key Site 21 is within the approximately 175-square-mile Santa Maria Valley Management Area (SMVMA), one of three management areas of the larger Santa Maria Basin. The annual groundwater extraction in the SMVMA was 111,920 acre-ft in 2016 (about 20,000 less acre-ft than in 2015), supplying about 91% of the total water requirement (LSCE, 2017).

Existing Proximal Water Wells

Several water wells are currently active or have historically been present near the recommended well locations. Records indicate at least four wells (09N/34W-8F1, -8K1, -8L1, and -8L2) to have been present at Key Site 21, all outside Portion B, but only one (-8L2) appears to be active and providing groundwater to the Rancho Maria Golf Course. Most proximal wells that serve nearby agricultural operations are adjacent to the Cabrillo Highway, owing to its proximity to power sources along the road and potentially sited due to proximity to the local syncline axis.

Most wells drilled prior to the 1950s tended to be on the order of 200 ft deep. These wells likely penetrated the highly-permeable Orcutt Formation, but many suffered from casing issues (such as sand production) or exhibited a water level decline by the 1970s that rendered production rates unfavorable. Since the nadir of the drought in 1977, relatively shallower water levels have allowed many of these wells to be useful again in recent decades, with production rates on the order of 200 gpm.

A long-term record (1955 to present) of groundwater levels in the shallower aquifer zones is available via the -8H1 well, located just northeast of the Key Site 21 parcel (Chart 1; Figs. 1, 3 for well location). Groundwater elevation has ranged from as deep as about +70 ft above mean sea level (AMSL) to as shallow as about +120 ft AMSL (150 to 100 ft bgs). Water levels have declined by about 30 ft over the last 15 years in the shallower aquifer zones. Groundwater

elevation contours in the shallower aquifer zones during the Spring High of 2016 are included in Figure 1.

Modern water wells tend to be deeper (generally between 600 to 700 ft) with large (12- to 16-inch-diameter) casings and production rates around 1500 gpm. These wells largely produce groundwater from the Paso Robles Formation, and are predominately used to meet local agricultural demands.

Long-term records of groundwater levels in the deeper aquifer zones are available via the -9R1 well (1956 to present), located along the syncline axis southeast of the site, and the -6C1 well (1966 to present), located along the syncline axis northwest of the site (Chart 1; Figs. 1, 3 for well locations). Groundwater elevations reflect a similar profile at the two wells, with relatively large variations between dry and wet periods (ranging as deep as about +40 ft AMSL to as shallow as +110 to 115 ft AMSL, or 225 to 150 ft bgs at the higher elevation -9R1 and 100 to 30 ft bgs at the lower elevation -6C1). Water levels have declined by about 75 ft over the last 15 years in the deeper aquifer zones. Groundwater elevation contours in the deeper aquifer zones during the Spring of 2016 are included in Figure 1.

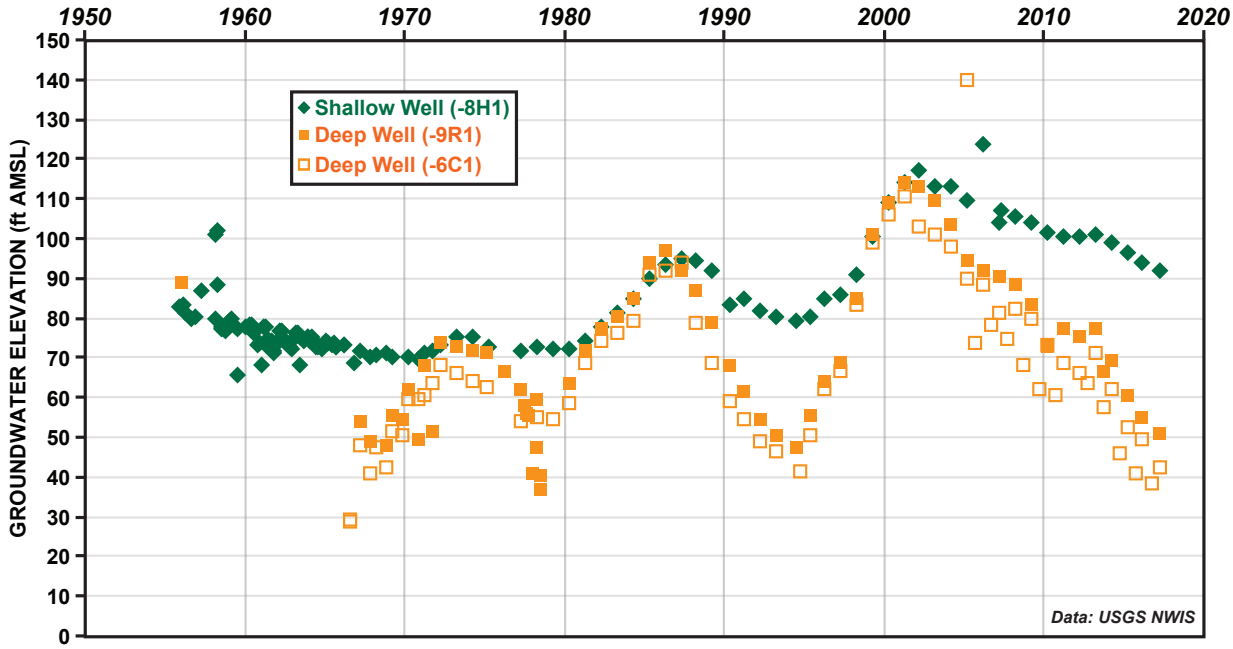

Chart 1.
Groundwater Elevations in the Shallow (green) and Deep (orange) Aquifer Zones.

Stratigraphy and Hydrogeology

Low-lying portions of Santa Maria Basin are filled with Quaternary and Tertiary-aged alluvium of largely fluvial origin, with sediment derived from the weathering and erosion of the surrounding mountains. The youngest (Quaternary) deposits consist of older, dissected Pleistocene-aged sediments and recent, Holocene-aged sediments. Local active alluvial deposition (Qa) occurs along Orcutt Creek's channel and floodplain. At Portion B, the shallowest materials are the older dune sand deposits (Qos) and the Orcutt Sand/Formation (Qo) (Figure 3). The late Pliocene to early Pleistocene-aged Paso Robles Formation (QTp) unconformably underlies the shallow Orcutt deposits and comprises the primary target aquifers for this project.

The weakly-consolidated Paso Robles Formation consists mainly of conglomeratic, sandstone, and mudstone strata of non-marine deposition. Older sedimentary rocks such as the Paso Robles Formation can yield significant quantities of groundwater to wells, especially where only partially cemented, unconsolidated, weathered, or highly fractured, which increases porosity and permeability. Groundwater is mostly stored as semi-confined to confined aquifers within interconnected lenses of sand and gravel.

In the Santa Maria Basin, the Paso Robles Formation is highly permeable due to a significant percentage (up to 50% of formation thickness) of gravel and sand layers, with wells producing as much as several thousand gpm. The formation reaches a maximum thickness of about 2000 ft along the synclinal axis of the basin, a linear northwest-southeast-trending feature that is mapped only about one-third mile to the northeast of the recommended Primary and Backup Well locations (Figures 4, 5 for strike-parallel and strike-perpendicular geologic cross sections).

The Paso Robles Formation is underlain by the semi-consolidated marine sandstone of the Pliocene-aged Careaga Sand, followed by older marine rocks of Pliocene and Miocene age, including the Foxen Mudstone, the Sisquoc Formation, and the Monterey Shale. Although the Careaga Sand (primarily its upper Graciosa Member) is both a target for many water wells in Santa Barbara County and considered the basal unit of the Santa Maria Basin, the formation is too deep to be considered an economically-viable target for this project.

Groundwater Recharge

Local aquifer zones are principally recharged by percolation of rainfall and stream flow. Precipitation averages 15 inches annually on the basin floor, but nearly double that in the high

elevations that are tributary to the basin, including the watersheds of the Sisquoc River and Cuyama River. Some recharge originates as irrigation return flow. There is also recharge from diffuse movement of groundwater through the surrounding units in the mountain blocks. The recharge processes acting at the basin/mountain interface are collectively referred to as "mountain-front recharge." A portion of groundwater is transpired by local flora in the foothills, the cycles of which have an impact on surface water flow and groundwater levels.

Local groundwater flow, unless inhibited by barriers such as faults, moves away from the Casmalia Hills and towards the west-northwest along Orcutt Creek, with some localized pumping depressions observed in areas such as in the Santa Maria Airport vicinity.

A significant recharge component to the Santa Maria Basin occurs along the Santa Maria River from water releases of Twitchell Reservoir, which stores winter rainfall runoff from the Cuyama River and its tributary areas. Over the following summer, stored water is released to the river at a rate that allows for full percolation of the flows without escape to the Pacific Ocean. This management practice results in a delayed time frame for peak precipitation to be reflected in peak groundwater levels, a phenomenon that is more pronounced in portions of the basin that are more removed from the recharge areas of the Santa Maria River to the north.

Groundwater Quality

Available records from proximal existing wells show a range of water quality, reflective of the differences between aquifers within the generally higher-quality Paso Robles Formation versus the poorer-quality shallower or deeper formations. Recent (2016) groundwater quality data indicate that local total dissolved solids (TDS) concentrations in the shallower aquifer zones generally ranged between 700 and 800 mg/L and between 650 and 800 mg/L in the deeper zones (LSCE, 2017).

Recent (2008 to 2012) water quality data from the nearby -8L2, the active golf course well (drilled to ~600 ft), expected to be similar to if not slightly poorer than the recommended Primary and Backup Wells, reveal a calcium-sulfate groundwater character with a TDS concentration of 615 mg/L and a pH of 7.3 to 7.4. Detailed water quality analyses indicated no significant impediments to public service of this groundwater. Importantly, nitrate (a problem elsewhere in the Santa Maria Basin, especially in shallower aquifer zones) was detected at 1.57 mg/L as N (with a maximum contaminant level of 10 mg/L).

Potential point sources of contamination are limited but include a now-closed leaky underground storage tank (LUST) case at the golf course and an inactive, more distal Department of Toxic Substances Control (DTSC) site. The LUST site involved a 500-gallon-capacity underground unleaded gasoline fuel tank and associated system that leaked and affected the soil only. The case was opened in 1991 and closed in 1992. Little readily available exists from the Airox Company DTSC site, but it is located more than 1 mile down-gradient of the recommended new wells.

Local native oil accumulations are mostly trapped in the Monterey Formation, which has been fractured, faulted, and folded into various structures including anticlines. Key Site 21 appears to be sufficiently removed from any structural trap to allow for any significant petroleum accumulation; in addition thousands of feet of strata separate the recommended new wells and the Monterey Formation.

Finally, the Laguna County Sanitation District (LCSD) operates a wastewater reclamation plant about 1.66 miles northwest (downstream and down-gradient with respect to groundwater flow directions) of the future well sites. The plant serves the community of Orcutt and portions of unincorporated southern Santa Maria (LCSD, 2009). The wastewater, derived from largely domestic sources, is treated to disinfected tertiary levels and recycled for irrigation/agricultural purposes. The plant discharges about 2.4 million gallons per day (mgd) but is rated up to 3.7 mgd.

Based on the conceptual understanding of the local groundwater system, the LCSD plant will not affect the area of the Key Site 21 directly via groundwater recharge but will build a groundwater mound such that the gradient is reduced and groundwater flows less steeply or around such a mound.

Project Demand Calculations

A gross project demand of 176.7 acre-ft per year has been estimated (with 51.62 acre-ft to the 53-unit "Hidden Canyon" neighborhood, 90.58 acre-ft to the 93-unit Willow Creek" neighborhood, and 34.5 acre-ft to the home owners association for irrigation). That annual demand calculates to a production rate of (a) 104 gpm with a 100% time of use factor (continuous pumping), (b) 139 gpm with a 75% use factor (18 hours pumping, 6 hours shut-off), (c) 208 gpm production rate with a 50% use factor (12 hours pumping, 12 hours shut-off), (d) 312 gpm production rate with a 33% use factor (8 hours pumping, 16 hours shut-off), or

(e) 416 gpm production rate with a 25% use factor (6 hours pumping, 18 hours shut-off). Each of these rates and use factors appear to be very feasible given the local geology and in wells of at least 10-inches diameter, with ultimate rates and pumping patterns to be determined as the project proceeds and the wells are developed.

We note that the net water use of the project is less due to irrigation return flows and conservation efforts, etc. To maintain a conservative approach to our calculations, well interference considerations, and well designs, KG uses gross values in this assessment.

At the recommended locations, sands and clays of the Orcutt formations are expected to be encountered to a depth of approximately 200 ft, followed by interbedded gravels, sands, and clays of the Paso Robles to the total recommended depth of 700 ft. Based on correlations of nearby geophysical well logs, KG anticipates that over 200 ft of Paso Robles sands and gravels will be encountered in the bores and targeted for groundwater production. Figure 6 presents our recommended preliminary well designs for the Primary and Backup Wells. With a low-end yield factor of 3 gpm/ft aquifer of thickness, a very conservative value for the Santa Maria Basin, a 600 gpm production rate (still higher than anticipated project demands) is quite feasible. Proximal wells (especially to the north, deeper into the basin) to similar depths with larger (12- to 16-inch-diameter) casings tend to produce average values of 1500 gpm.

Well Interference Analytical Modeling

KG modeled and calculated various scenarios to estimate the effect of theoretical pumping of the Primary Well (at various rates) on proximal existing wells. The potential effects through various pumping cycles and durations were evaluated via the Theis distance-drawdown equations, which are well-established in hydrogeologic literature. Theis estimated drawdown, s (in ft), as

$$s = \frac{Q}{4\pi T} W(u)$$

where Q is production rate (in gpd), T is transmissivity (in ft^2/day), and W(u) is the well function; u is solved by:

$$u = \frac{r^2 S}{4Tt}$$

where r is the radial distance (in ft), S is storativity, and t is pumping time (in days). For the

calculations herein, KG assumed a transmissivity of 100,000 gpd/ft (13,368 ft^2/day) and storativity of 0.0001 (after Fugro, 2015, for Paso Robles Formation aquifers). This would be a median estimate based on available production test data from proximal water wells, which had transmissivity values that generally ranged between 20,000 to 200,000 gpd/ft.

Based on our analytical modeling, following 1 day of pumping at 104 gpm, the induced drawdown would be <1 ft at an estimated 260 ft radial distance from the well and <0.5 ft by at an estimated 2175 ft radial distance (Figure 7). KG has modeled a radius of "no influence," or zero drawdown, to be around 18,000 horizontal ft, but is typically impractical to detect given measurement limitations and overriding fluctuations in the groundwater table. Pumping the Primary or Backup Wells would induce a very gentle cone of depression that would extend for a few miles around the wells. Most proximal wells (including the active golf course well) would have induced drawdowns between 0.5 and 1 ft under the 104 gpm rate at 1 day of pumping.

Following 0.25 days (6 hours) of pumping at 416 gpm, KG modeled the induced drawdown to be <4.0 ft at an estimated 130 ft radial distance from the well, <3.0 ft at an estimated 375 ft, <2.0 ft at an estimated 1070 ft, and <1.0 ft at an estimated 3150 ft (Figure 8). The radius of "no influence," or zero drawdown, is modeled to be around 8800 horizontal ft. Most proximal wells would have induced drawdowns between 1 and 3 ft.

Based on the analysis described above, modeled interference between the recommended Primary and or Backup Wells and existing wells is likely to be measurable but not significant. The greatest effects are estimated to occur when wells are pumped at high rates and longer durations. Since the higher rates would meet project demands in shorter durations, these values are considered highly conservative.

Additionally, due to the steep formation dips towards the syncline axis, there is generally indirect correlation of aquifer units in between the recommended new wells and existing wells to the north or south, including the golf course well. The golf course well, up-dip from the Primary and Backup Well locations, extracts groundwater from an overall deeper stratigraphic section than the new wells would, even though they may be of equal vertical depth.

Further testing should be conducted to calibrate these modeled values. Specifically, when the new wells are drilled and tested, observations in available existing wells should be made in order

to estimate accurate values of storativity and transmissivity.

Preliminary Recommended Approach for Groundwater Development Operations

Groundwater well development at the Portion B of Key Site 21 appears to be feasible based on our review of local geology, hydrogeology, and local similar production wells.

Our recommended approach for groundwater development includes permitting through Santa Barbara County. Permissibility of new well constructions to the total recommended depths should be ensured prior to action. The application for new well construction permits should be submitted to the County agency as soon as practical. Subsurface utilities should be adequately located as part of standard utility clearance operations. In compliance with applicable regulations, KG recommends contacting DigSafe/USA 811 at least 48 hours and within 14 days prior to any site clearing, preparation, or drilling.

Considering both the hydrogeological and the logistical constraints, including golf course operations and environmental considerations, KG recommends drilling the Primary and Backup Wells in close proximity to each other (about 50 ft removed) near the northern extent of Portion B. The recommended locations are just west of the golf course entry road and about 200 ft south of Cabrillo Highway. This allows for nearly the thickest possible package of the targeted Paso Robles Formation (due to the closest proximity to the axis of the synclinal fold structure that dominates the valley), as well as adequate setbacks from existing production wells such that interference is minimized.

The pilot well bores should be advanced via reverse circulation rotary methods to allow for collection of drill cuttings, to maintain borehole stability, and to provide a fluid to facilitate geophysical logging, including electric logging, deviation, and sonic/variable density logging. The geophysical logs would inform well designs, intending to prevent casing or screening the wells in poor quality zones.

The final well completions would be designed, if advisable, after geologist's review of the drilling data, geologic information, and any down-hole geophysical surveys completed in the pilot boreholes. Should the pilot bores indicate viable conditions for well completions and designs agreed upon, the same drilling rig would then ream the pilot bores out to larger diameters, as needed, in order to accommodate the well casings and permanent annular materials. The

boreholes would be reamed out to 16 inches (minimum) diameter in order to accommodate the 10-inch-diameter high-strength, low-alloy (HSLA) steel casings. The casings would be assembled and constructed with perforated intervals at designed depths. The 10-inch-diameter casings are recommended in order to ensure that each well can accommodate a pump capable to produce the potentially highest-desired rate of 600 gpm.

Following casing installations, gravel pack would be emplaced in the annular spaces and seals emplaced above the gravel pack and, if necessary, adjacent to any poor quality zones. Mechanical development and test pumping, collection and analysis of water quality samples, and equipping the wells with appropriate infrastructure would follow. Qualified hydrogeologic personnel should be present during key periods of drilling, construction, development, and testing to assist in the decision processes toward well completions. After initial testing, including monitoring at nearby water wells to measure interference, a permanent pump, power and infrastructure would be designed and installed at each well.

We look forward to our continued involvement with the Portion B project: our subsequent tasks may include assistance in the solicitation of drilling bids and contracting, permitting support, and field support during drilling, construction, development, and testing at the two wells.

Please do not hesitate to contact us with any questions.

Best Regards,

Jordan Kear
Principal Hydrogeologist
Professional Geologist No. 6960
California Certified Hydrogeologist No. 749

Timothy Becker
Professional Geologist
(No. Pending)

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Statement of Limitations

The services described in this report were performed in a manner consistent with our agreement with the client and in accordance with generally accepted professional consulting principles and practices. Opinions and recommendations contained in this report apply to conditions existing at certain locations when services were performed and are intended only for the specific purposes, locations, time frames, and project parameters indicated. We cannot be responsible for the impact of any changes in standards, practices, or regulations after performance of services.

Hydrogeologic analyses for this report relied solely on available background data obtained from the property owner, Santa Barbara County, the State of California, and/or published geologic reports. No independent subsurface exploration or geophysical surveying was conducted by our firm for this study. No guarantee of water quantity or quality from an attempted well, nor sustained production from an existing well, can be offered. Because the efforts to implement recommendations contained herein rely on the skill of outside contractors, our liability is limited to the dollar value of our professional efforts. Professional hydrogeologic review of pilot hole data is imperative to implementing the recommendations of this report.

Any discussions of fault activity herein are offered as they relate to groundwater resource development only. This report does not substitute a geotechnical analysis to support earthwork or construction. Any use of this report by a third party is expressly prohibited without a written, specific authorization from the client. Such authorization will require a signed waiver and release agreement.

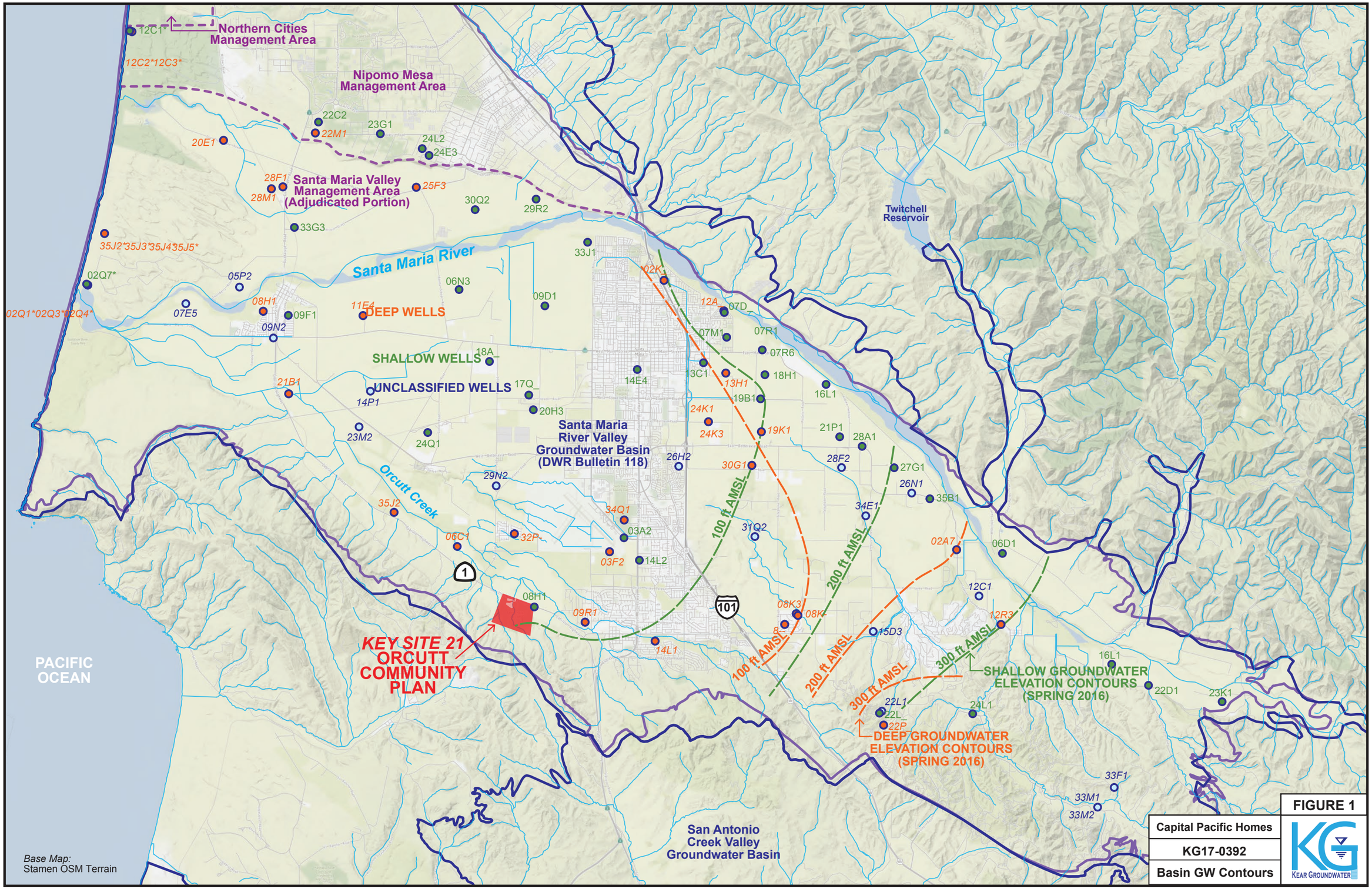


FIGURE 1

Capital Pacific Homes

KG17-0392

Basin GW Contours

KEAR GROUNDWATER

Water Wells, GW Contours, Management Areas: LSCE (2017)
Adjudicated/GW Basins: DWR Bulletin 118
Streams: USGS NHD

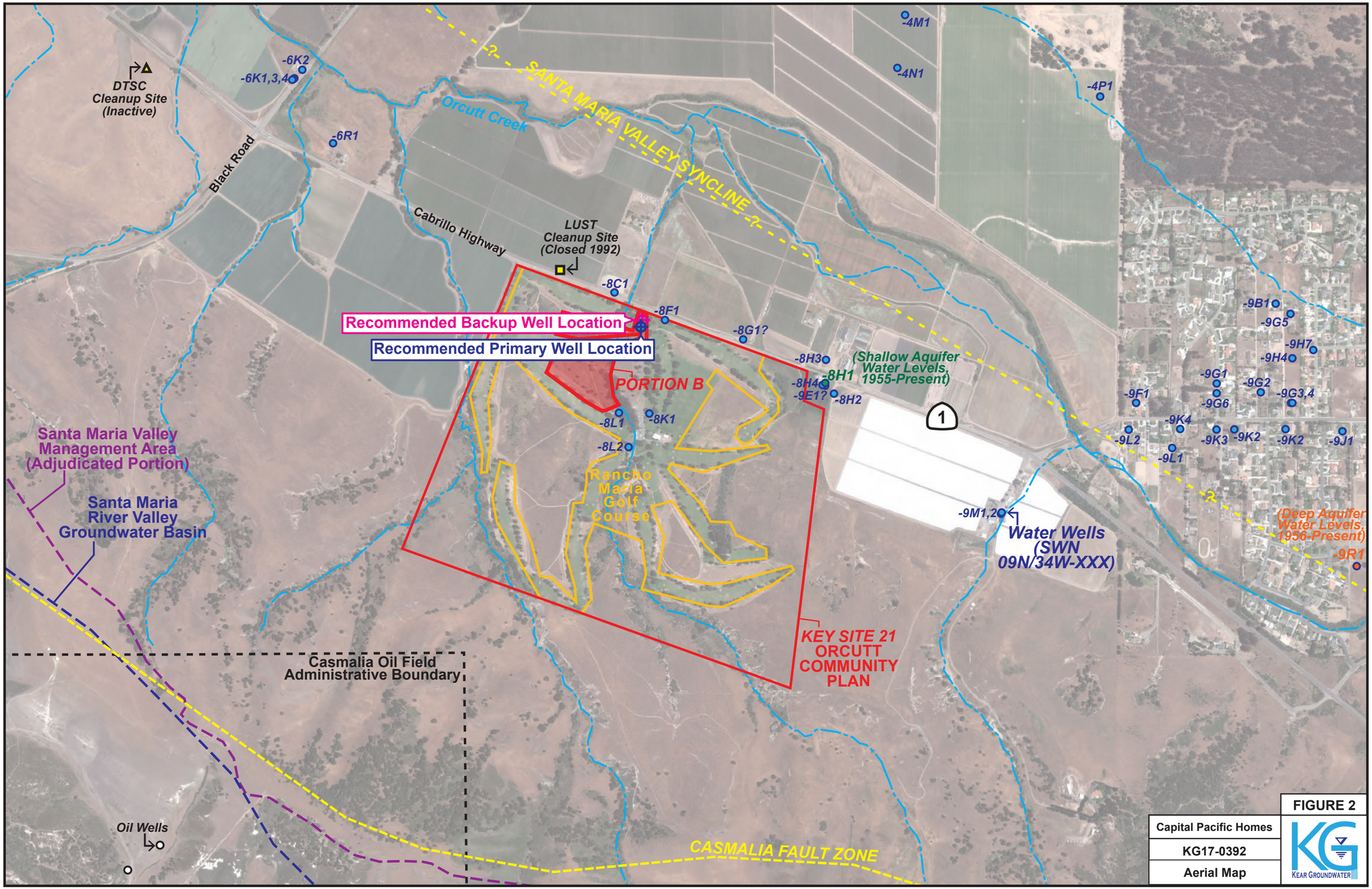


FIGURE 2
Capital Pacific Homes
KG17-0392
Aerial Map

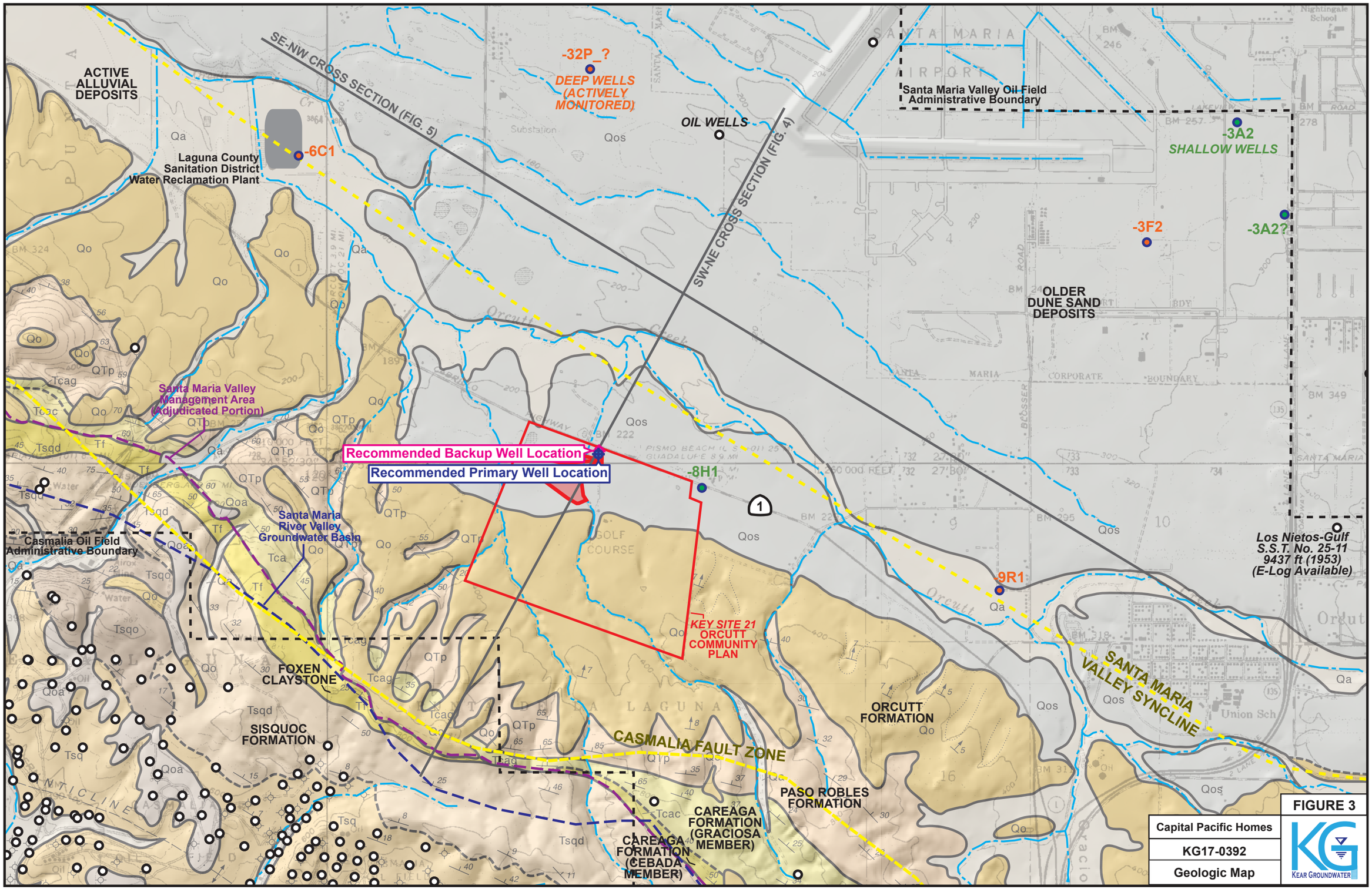
KEAR GROUNDWATER

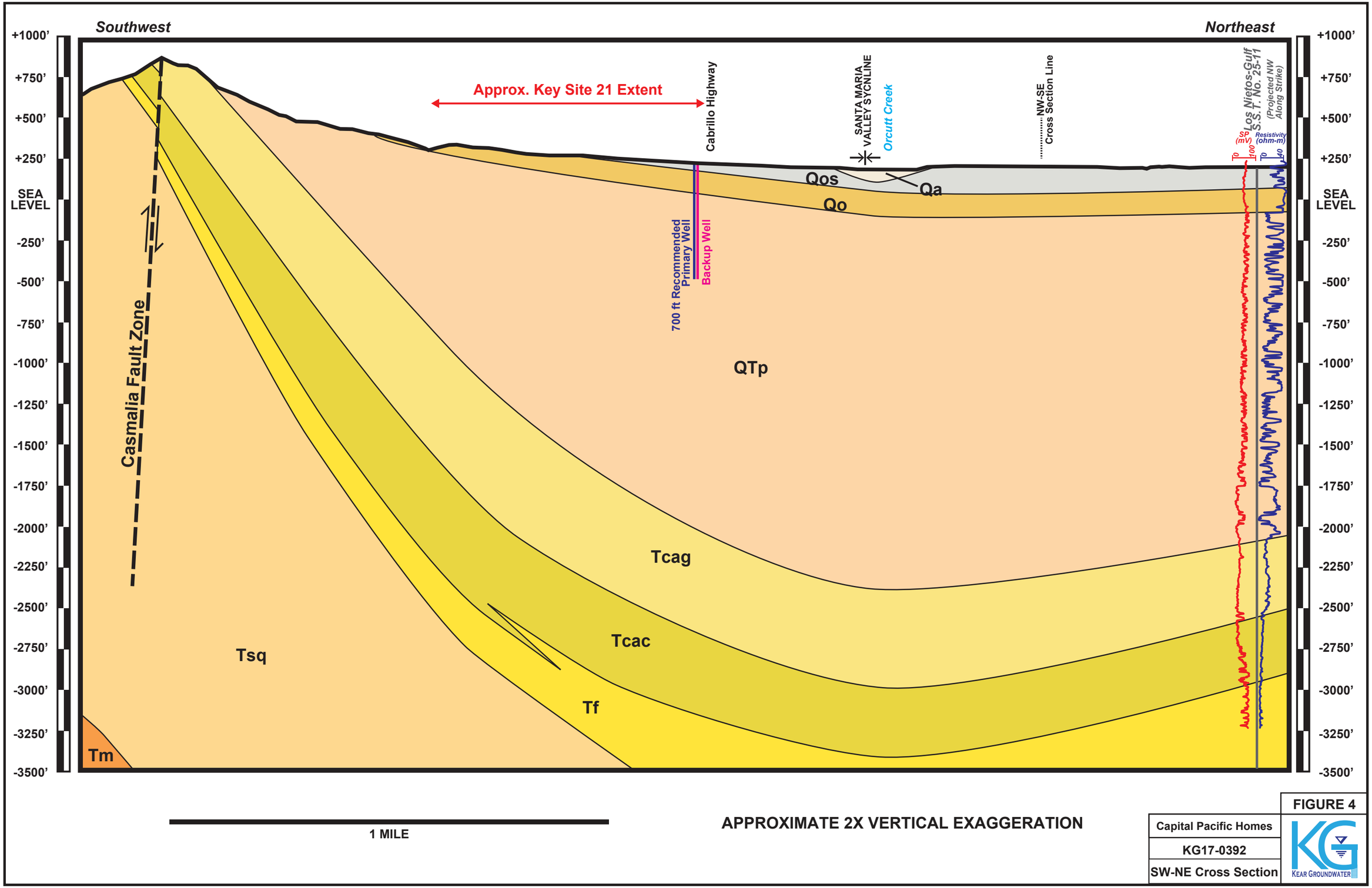
Water Wells: USGS NWIS
Oil Wells/Fields: DOC DOGGR
Aerial Image: Google Earth (6-June-2012)

Adjudicated/GW Basins: DWR Bulletin 118
Fault: USGS EHD; *Syncline Axis:* Worts (USGS, 1951)
Streams: USGS NHD; *Environmental Sites:* SWRCB GeoTracker

0 1000 2000 ft

N


ACTIVE ALLUVIAL DEPOSITS
SE-NW CROSS SECTION (FIG. 5)
SW-NE CROSS SECTION (FIG. 4)
-32P_?
DEEP WELLS (ACTIVELY MONITORED)
OIL WELLS
Santa Maria Valley Oil Field Administrative Boundary
-3A2
SHALLOW WELLS
-3A2?
-3F2
-6C1
Laguna County Sanitation District Water Reclamation Plant
OLDER DUNE SAND DEPOSITS
Santa Maria Valley Management Area (Adjudicated Portion)
Recommended Backup Well Location
Recommended Primary Well Location
-8H1
Santa Maria River Valley Groundwater Basin
Casmalia Oil Field Administrative Boundary
Los Nietos-Gulf S.S.T. No. 25-11 9437 ft (1953) (E-Log Available)
9R1
KEY SITE 21 ORCUTT COMMUNITY PLAN
FOXEN CLAYSTONE
SISQUOC FORMATION
CASMALIA FAULT ZONE
ORCUTT FORMATION
SANTA MARIA VALLEY SYNCLINE
PASO ROBLES FORMATION
CAREAGA FORMATION (GRACIOSA MEMBER)
CAREAGA FORMATION (CEBADA MEMBER)
Water Wells: USGS NWIS; LSCE (2017)
Oil Wells/Fields: DOC DOGGR
Base Geology: Dibblee (1989a; b; 1994)
Adjudicated/GW Basins: DWR Bulletin 118
Streams: USGS NHD; Shaded Relief: Modified from USGS NED
Fault: USGS EHD; Fold: Worts (USGS, 1951)
0 2000 4000 ft
N
FIGURE 3
Capital Pacific Homes
KG17-0392
Geologic Map
KEAR GROUNDWATER



Cross Section After: Woodring and Bramlette (USGS, 1950); Worts (USGS, 1951)
Formation Contacts at Surface: Dibblee (1989a; 1994)

Ground Surface Profile: Google Earth
Oil Well Electric Log: DOC DOGGR

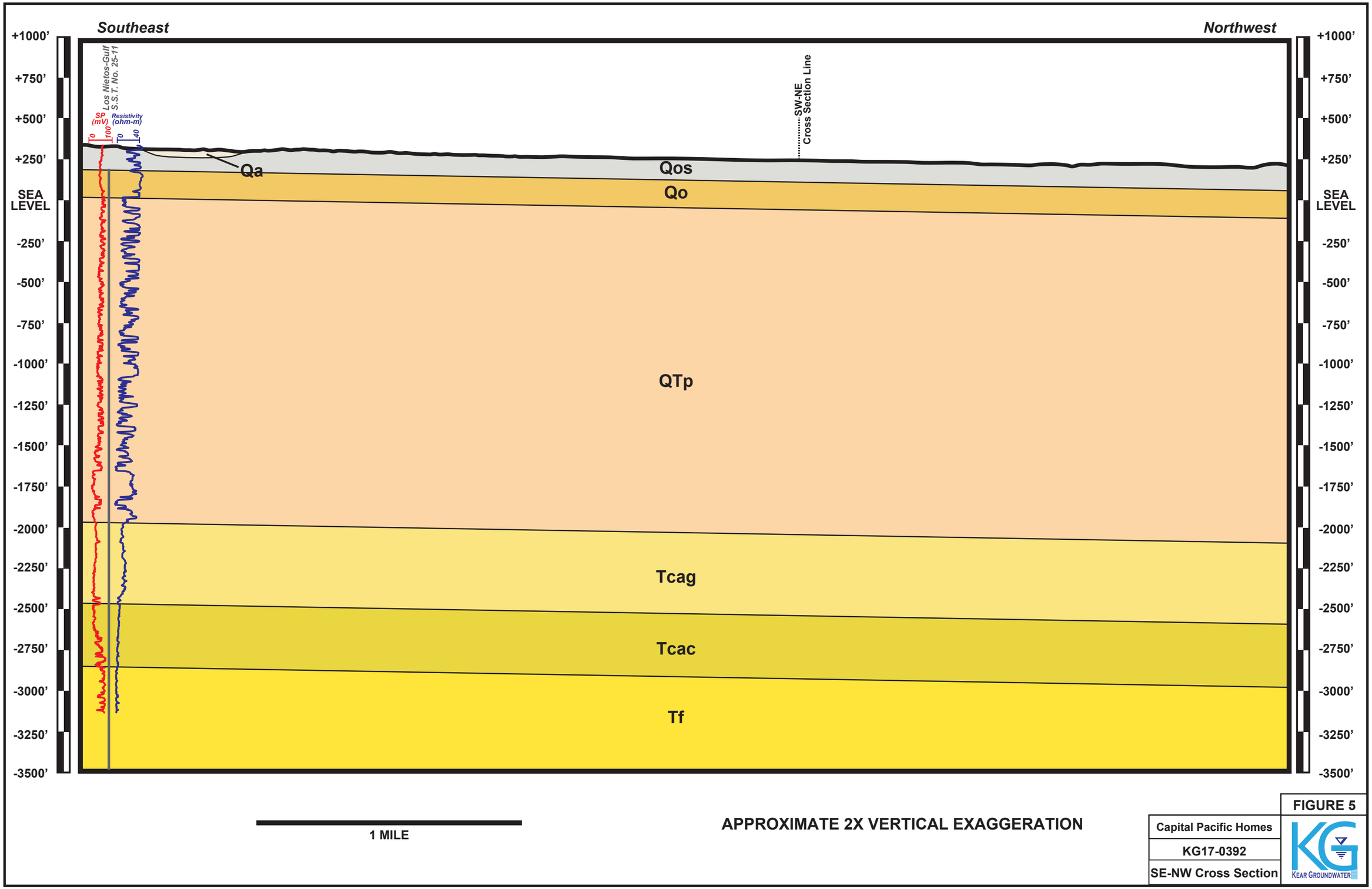


FIGURE 5

Capital Pacific Homes

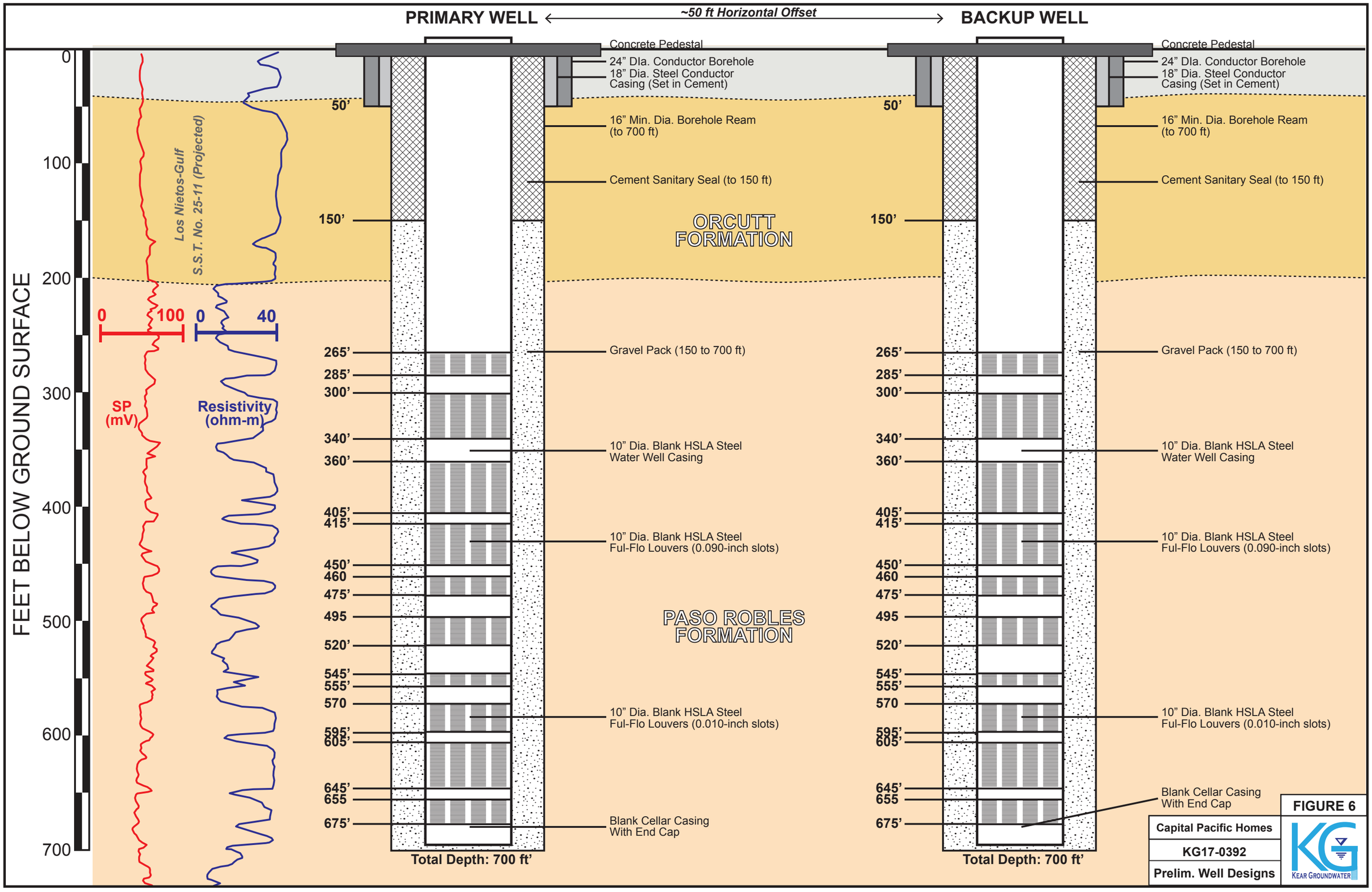
KG17-0392

SE-NW Cross Section

KEAR GROUNDWATER

Cross Section After: Woodring and Bramlette (USGS, 1950); Worts (USGS, 1951)

Ground Surface Profile: Google Earth
Oil Well Electric Log: DOC DOGGR



Oil Well Electric Log: DOC DOGGR

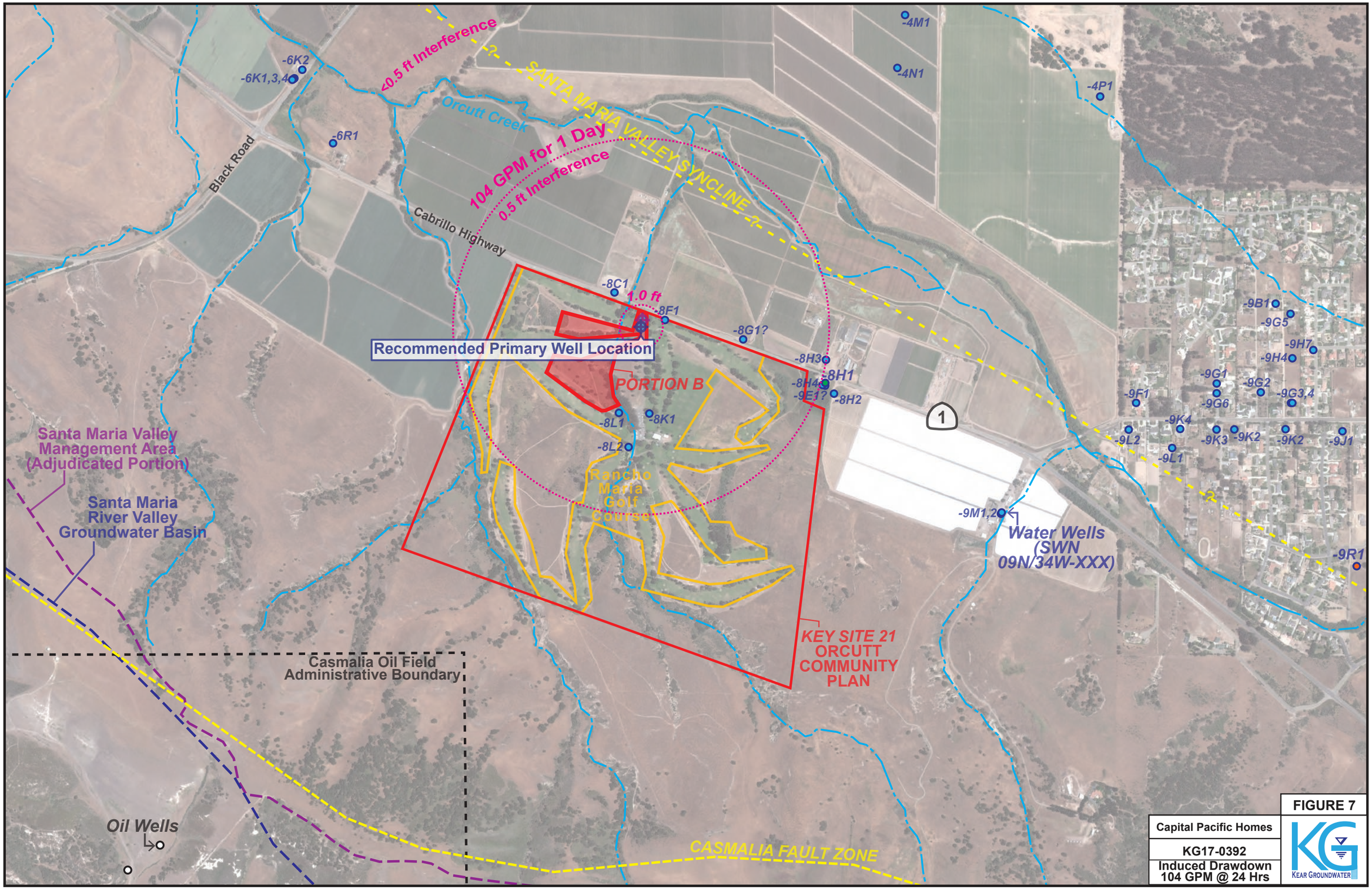


FIGURE 7

Capital Pacific Homes

KG17-0392

Induced Drawdown 104 GPM @ 24 Hrs

KEAR GROUNDWATER

Water Wells: USGS NWIS
Oil Wells/Fields: DOC DOGGR
Aerial Image: Google Earth (6-June-2012)

Adjudicated/GW Basins: DWR Bulletin 118
Fault: USGS EHD; *Syncline Axis:* Worts (USGS, 1951)
Streams: USGS NHD

0 1000 2000 ft

N

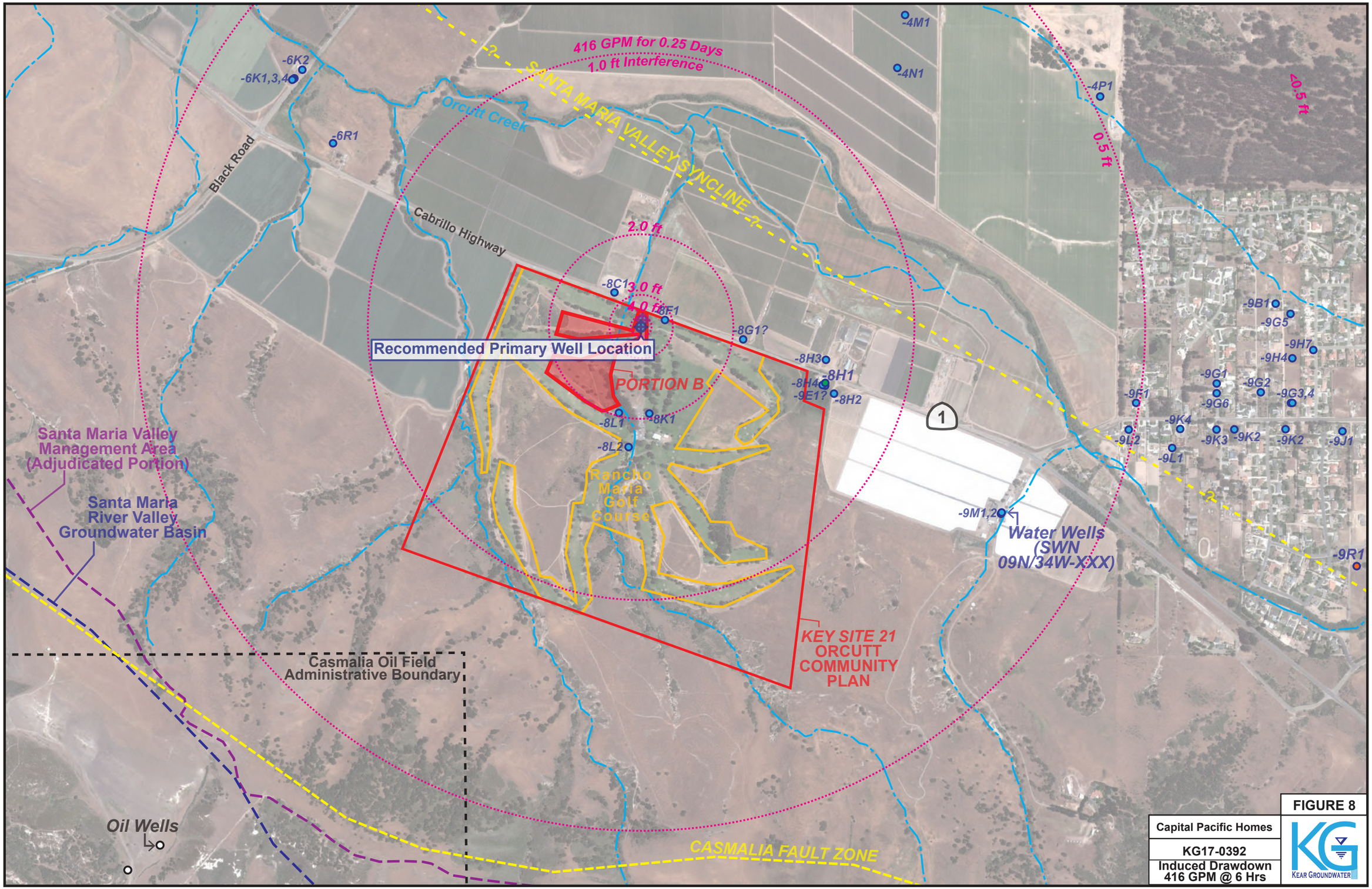


FIGURE 8

Capital Pacific Homes

KG17-0392

Induced Drawdown
416 GPM @ 6 Hrs

KEAR GROUNDWATER

Water Wells: USGS NWIS
Oil Wells/Fields: DOC DOGGR
Aerial Image: Google Earth (6-June-2012)

Adjudicated/GW Basins: DWR Bulletin 118
Fault: USGS EHD; *Syncline Axis:* Worts (USGS, 1951)
Streams: USGS NHD

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BASIN HYDROLOGY REPORT

for

HIDDEN CANYON
Santa Barbara County, CA

June 1, 2017

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INTRODUCTION

The proposed tract is located in the Santa Barbara County. The site is bounded by Highway 1/Cabrillo Highway to the north, by Rancho Maria Golf Club to the west, by dry grassland to the south, and by farm land to the east. Rancho Maria Golf Course wraps around the project. The property covers 106.73 acres. The property is currently undeveloped and consists of some trees and plants and gently slops down south to north. A couple of years ago the site was used for farming and currently there are abandoned row crops on site. Only 43.72 acres will be disturbed. The remaining 63.01 acres will be left as is. For the purpose of the projects calculations only the 43.72 acres that will be disturbed will be considered. See Vicinity Map, Appendix B.

Hidden Canyon Neighborhoods development proposes 56 family homes. There are two gullies. One gully is on the southwest side and the other on the west side of the site. However the proposed project has been designed away from both gullies. There will be one basin constructed for the storm water drainage. The following report and calculations show how the basin will work for this project and contain all runoff.

PREDEVELOPMENT FLOWS

Predevelopment flows are based on the currently undeveloped area, south of Highway 1 and west of the Rancho Maria Golf Club.

Predevelopment Flow
Area 2.0 =43.72 acres
CN Selected = 72, Based on HSG B, Legumes, straight row, Good, HSG B
Tc=12 Min

Events for Subcatchment 2.0: Pre East Native

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 YEAR	1.11	0.789	0.22
5 YEAR	8.91	2.157	0.59
10 YEAR	16.37	3.275	0.90
25 YEAR	27.06	4.840	1.33
100 YEAR	**44.40**	**7.340**	**2.01**

See **Appendix D** for more detailed calculations

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POST DEVELOPMENT: TRIBUTARY AREAS

The on-site tributary areas are defined as follows. See Appendix C for Drainage Map.

Area 2.1- Area 2.1 is all landscape that will be disturbed throughout the site. Most of the landscape in this area is the sloped area outside of the individual lots.

The developed tributary flows are as follows:

Area=495,127 SF

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.05 cfs @ 20.25 hrs, Volume= 0.039 af, Depth= 0.04"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
495,127	61	>75% Grass cover, Good, HSG B
495,127		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	3,150	0.1400	1.46		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.23 cfs @ 12.92 hrs, Volume= 0.220 af, Depth= 0.23"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
495,127	61	>75% Grass cover, Good, HSG B
495,127		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	3,150	0.1400	1.46		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.48 cfs @ 10.84 hrs, Volume= 0.401 af, Depth= 0.42"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
495,127	61	>75% Grass cover, Good, HSG B
495,127		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	3,150	0.1400	1.46		**Lag/CN Method,**

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Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 1.18 cfs @ 10.37 hrs, Volume= 0.680 af, Depth= 0.72"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
495,127	61	>75% Grass cover, Good, HSG B
495,127		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	3,150	0.1400	1.46		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 2.73 cfs @ 10.09 hrs, Volume= 1.163 af, Depth= 1.23"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
495,127	61	>75% Grass cover, Good, HSG B
495,127		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	3,150	0.1400	1.46		**Lag/CN Method,**

Area 2.2- Area 2.2 is the roads and decomposed granite sidewalk. Flows from this area flow through a series of pipes that lead to the proposed basin.

The developed tributary flows are as follows:

Area=330,783 SF

Summary for Subcatchment 2.2: East Roads

Runoff = 5.62 cfs @ 10.00 hrs, Volume= 1.004 af, Depth= 1.59"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
330,783	98	Paved roads w/curbs & sewers, HSG A
330,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	3,421	0.0529	3.26		**Lag/CN Method, WP ROADS**

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Summary for Subcatchment 2.2: East Roads

Runoff = 8.34 cfs @ 10.00 hrs, Volume= 1.512 af, Depth= 2.39"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
330,783	98	Paved roads w/curbs & sewers, HSG A
330,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	3,421	0.0529	3.26		**Lag/CN Method, WP ROADS**

Summary for Subcatchment 2.2: East Roads

Runoff = 10.10 cfs @ 10.00 hrs, Volume= 1.846 af, Depth= 2.92"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
330,783	98	Paved roads w/curbs & sewers, HSG A
330,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	3,421	0.0529	3.26		**Lag/CN Method, WP ROADS**

Summary for Subcatchment 2.2: East Roads

Runoff = 12.29 cfs @ 10.00 hrs, Volume= 2.263 af, Depth= 3.58"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
330,783	98	Paved roads w/curbs & sewers, HSG A
330,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	3,421	0.0529	3.26		**Lag/CN Method, WP ROADS**

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Summary for Subcatchment 2.2: East Roads

Runoff = 15.43 cfs @ 10.00 hrs, Volume= 2.863 af, Depth= 4.52"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
330,783	98	Paved roads w/curbs & sewers, HSG A
330,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	3,421	0.0529	3.26		**Lag/CN Method, WP ROADS**

Area 2.3- Area 2.3 is the lots. Flows from this area flow down to the roads and through a series of pipes that lead to the proposed basin.

The developed tributary flows are as follows:

Area=1,012,641

Summary for Subcatchment 2.3: Average Lot

Runoff = 0.74 cfs @ 10.72 hrs, Volume= 0.566 af, Depth= 0.29"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
1,012,641	75	1/4 acre lots, 38% imp, HSG B
627,837		62.00% Pervious Area
384,804		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	3,683	0.0500	1.31		**Lag/CN Method, WP**

Summary for Subcatchment 2.3: Average Lot

Runoff = 2.93 cfs @ 10.26 hrs, Volume= 1.398 af, Depth= 0.72"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
1,012,641	75	1/4 acre lots, 38% imp, HSG B
627,837		62.00% Pervious Area
384,804		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	3,683	0.0500	1.31		**Lag/CN Method, WP**

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Summary for Subcatchment 2.3: Average Lot

Runoff = 4.95 cfs @ 10.12 hrs, Volume= 2.054 af, Depth= 1.06"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
1,012,641	75	1/4 acre lots, 38% imp, HSG B
627,837		62.00% Pervious Area
384,804		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	3,683	0.0500	1.31		**Lag/CN Method, WP**

Summary for Subcatchment 2.3: Average Lot

Runoff = 7.93 cfs @ 10.07 hrs, Volume= 2.955 af, Depth= 1.53"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
1,012,641	75	1/4 acre lots, 38% imp, HSG B
627,837		62.00% Pervious Area
384,804		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	3,683	0.0500	1.31		**Lag/CN Method, WP**

Summary for Subcatchment 2.3: Average Lot

Runoff = 12.69 cfs @ 10.06 hrs, Volume= 4.371 af, Depth= 2.26"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
1,012,641	75	1/4 acre lots, 38% imp, HSG B
627,837		62.00% Pervious Area
384,804		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	3,683	0.0500	1.31		**Lag/CN Method, WP**

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PROPOSED DESIGN

The proposed development will be designed to convey all site-generated storm water to an onsite retardation basin that is located in northwest corner of the site.

Santa Barbara County Flood Control District (SBCFCD) limits post-development discharge to 0.07 cubic feet per second (cfs) per acre for 25-year storm events. This rate approximates discharge from natural, undeveloped site for this project vicinity, and therefore approximates maximum post-development runoff rates based on the future disturbed area. The storm water detention facility will attenuate the 2, 5, 10, 25, and 100-year storms and discharge at or below existing drainage conditions in order to meet the post-development runoff criteria set forth by the SBCFCD. In order to mimic existing drainage conditions the storm water runoff will be captured and slowly released from the basin. By slowly releasing the runoff this will prevent increased peak flows, soil erosion, and flooding. The basin was designed using Hydro CAD software accounting for the flows.

The following information is a summary report of the basin

Basin Dimensions:

	Elevation	Area		Perimeter	
Basin Bottom	210.08	42,115	SF	1,139	LF
0.92' Depth	211.00	46,398	SF	1,155	LF
1.92' Depth	212.00	51,119	SF	1,174	LF
2.92' Depth	213.00	55,932	SF	1,193	LF
3.92' Depth	214.00	60,912	SF	1,222	LF
4.92' Depth	215.00	65,987	SF	1,251	LF

Events for Pond 1: East Basin

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	6.09	0.96	0.96	0.00	210.74	28,745
5 YEAR	11.07	1.67	1.67	0.00	211.40	59,852
10 YEAR	15.15	2.10	2.10	0.00	211.98	88,435
25 YEAR	21.02	2.59	2.59	0.00	212.79	131,484
100 YEAR	30.54	3.73	3.73	0.00	213.96	198,962
25 YEAR (FLOOD CONTROL)	*NA*	*NA*	*3.06*	*NA*	*NA*	*NA*

See Appendix E for addition information.
See Appendix F for 25-year storm event calculations for flood control.

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The following is a table comparing post-development runoff to pre-development runoff.

Event	Pre-development Total (cfs)	Post-development Total (cfs)	Pre>Post	Difference (cfs)
2- Yr	1.11	0.96	YES	-0.15
5- Yr	8.91	1.67	YES	-7.24
10- Yr	16.37	2.10	YES	-14.27
25- Yr	27.06	2.59	YES	-24.47
100- Yr	44.40	3.73	YES	-40.67
25-Yr (Flood Control)	NA	3.06	YES	-24.00

Table 1: Summary of Pre-Undisturbed to Post-Undisturbed runoff (cfs).

In conclusion we can see from the Table 1 that even in the events of a 2, 5, 10, 25, and 100-year storm the post-development runoff caused by the proposed project does not exceed that of the existing pre-development conditions into the golf course and does not divert from historical drainage patterns. The project also meets the Santa Barbara County Flood Control District (SBCFCD) limit post-development discharge of 3.06 cfs for a 25-year storm event.

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Summary for Pond 1: East Basin

Inflow Area = 42.207 ac, 38.92% Impervious, Inflow Depth = 2.39" for 100 YEAR event
Inflow = 30.54 cfs @ 10.02 hrs, Volume= 8.396 af
Outflow = 3.73 cfs @ 18.77 hrs, Volume= 6.491 af, Atten= 88%, Lag= 525.4 min
Primary = 3.73 cfs @ 18.77 hrs, Volume= 6.491 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 213.96' @ 18.77 hrs Surf.Area= 60,710 sf Storage= 198,960 cf

Plug-Flow detention time= 625.2 min calculated for 6.482 af (77% of inflow)
Center-of-Mass det. time= 502.9 min (1,318.9 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.72 cfs @ 18.77 hrs HW=213.96' (Free Discharge)
└**4=Orifice/Grate** (Passes 3.72 cfs of 15.05 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 3.17 cfs @ 9.07 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.56 cfs @ 1.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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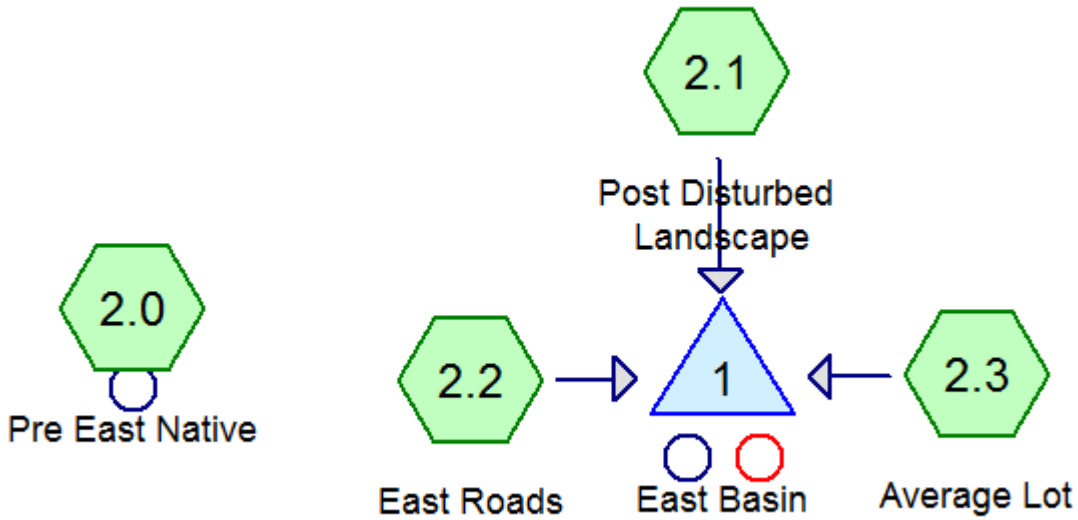
APPENDIX A

Hydro CAD Routing Diagram



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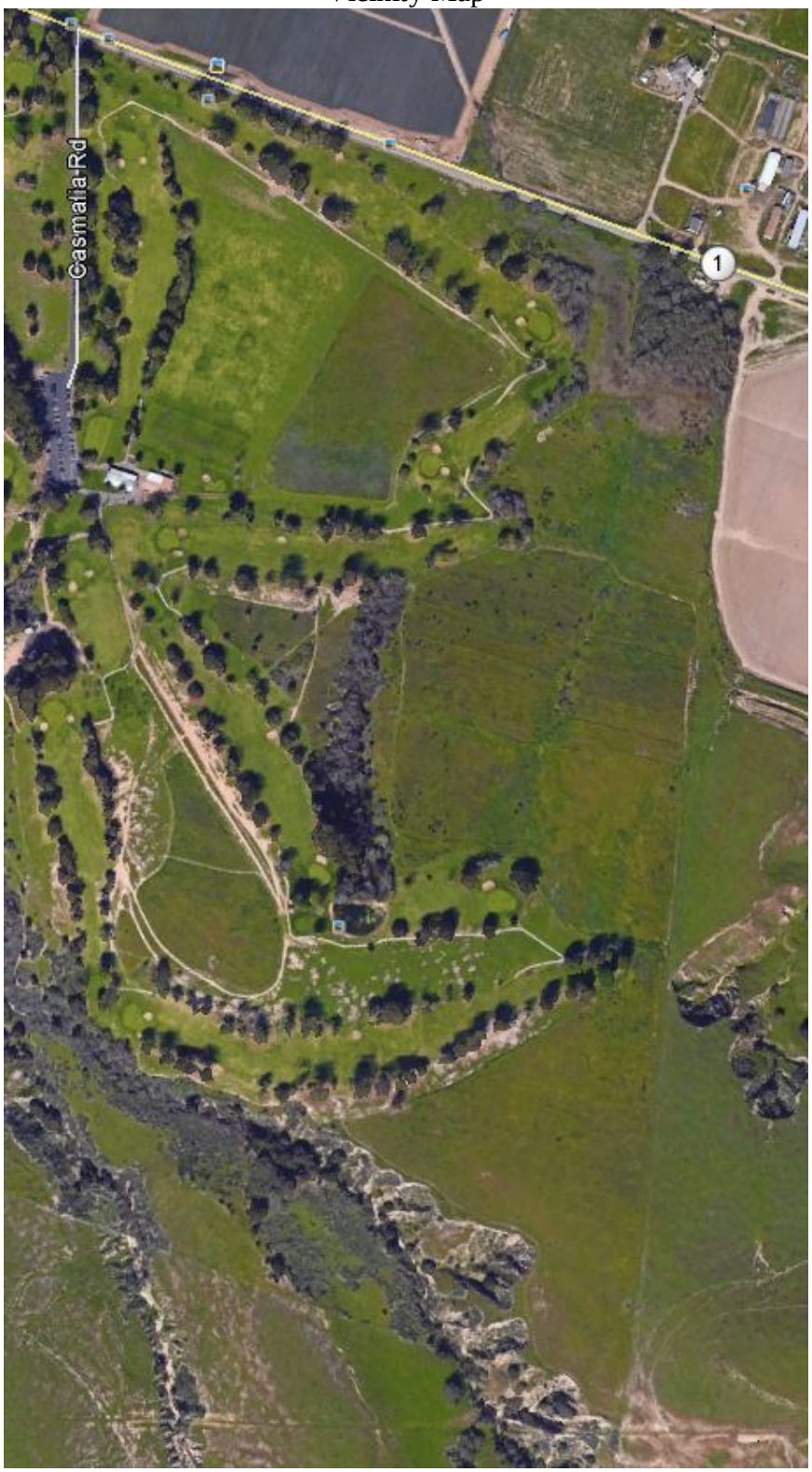
APPENDIX B

Vicinity Map



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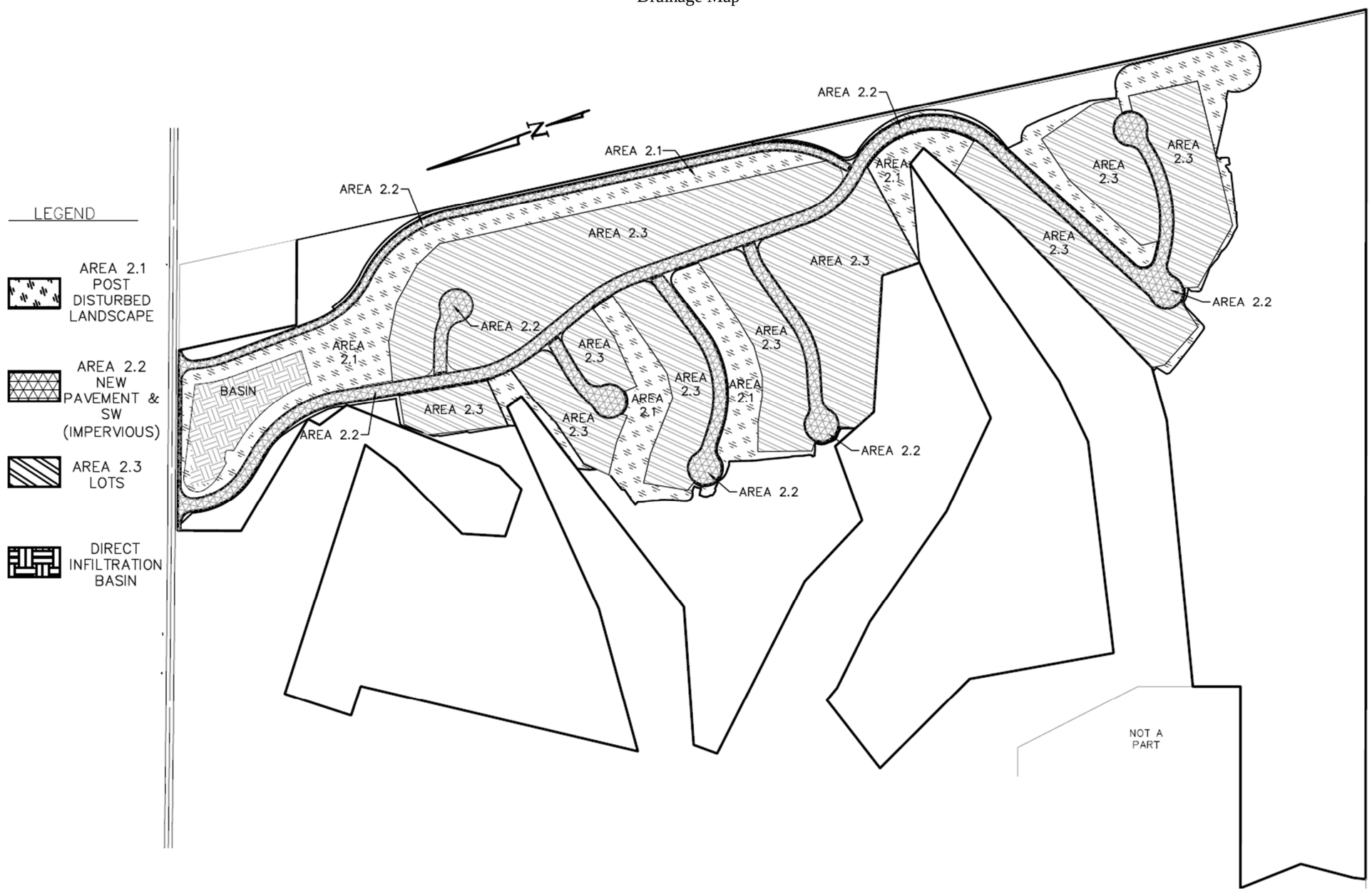
APPENDIX C

Drainage Map



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APPENDIX D

Pre-Development Hydro CAD Calculations

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Pre-development Tributary Area:

Summary for Subcatchment 2.0: Pre East Native

Runoff = 1.11 cfs @ 10.36 hrs, Volume= 0.789 af, Depth= 0.22"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (ac)	CN	Description
43.720	72	Legumes, straight row, Good, HSG B
43.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 2.0: Pre East Native

Runoff = 8.91 cfs @ 10.01 hrs, Volume= 2.157 af, Depth= 0.59"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (ac)	CN	Description
43.720	72	Legumes, straight row, Good, HSG B
43.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 2.0: Pre East Native

Runoff = 16.37 cfs @ 10.01 hrs, Volume= 3.275 af, Depth= 0.90"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (ac)	CN	Description
43.720	72	Legumes, straight row, Good, HSG B
43.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

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Summary for Subcatchment 2.0: Pre East Native

Runoff = 27.06 cfs @ 10.00 hrs, Volume= 4.840 af, Depth= 1.33"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (ac)	CN	Description
43.720	72	Legumes, straight row, Good, HSG B
43.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 2.0: Pre East Native

Runoff = 44.40 cfs @ 10.00 hrs, Volume= 7.340 af, Depth= 2.01"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (ac)	CN	Description
43.720	72	Legumes, straight row, Good, HSG B
43.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

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APPENDIX E

Post-Development Hydro CAD Calculations

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Hidden Canyon June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
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Summary for Pond 1: East Basin

Inflow Area = 42.207 ac, 38.92% Impervious, Inflow Depth = 0.46" for 2 YEAR event
Inflow = 6.09 cfs @ 10.01 hrs, Volume= 1.608 af
Outflow = 0.96 cfs @ 14.61 hrs, Volume= 1.404 af, Atten= 84%, Lag= 276.5 min
Primary = 0.96 cfs @ 14.61 hrs, Volume= 1.404 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 210.74' @ 14.61 hrs Surf.Area= 45,181 sf Storage= 28,743 cf

Plug-Flow detention time= 439.9 min calculated for 1.402 af (87% of inflow)
Center-of-Mass det. time= 365.3 min (1,193.3 - 828.0)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.96 cfs @ 14.61 hrs HW=210.74' (Free Discharge)
└**4=Orifice/Grate** (Passes 0.96 cfs of 2.06 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.96 cfs @ 2.76 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Hidden Canyon June 1, 2017 Type I 24-hr SM-5 Rainfall= 2.62"
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Summary for Pond 1: East Basin

Inflow Area =	42.207 ac, 38.92% Impervious, Inflow Depth = 0.89" for 5 YEAR event			
Inflow =	11.07 cfs @	10.01 hrs, Volume=	3.131 af	
Outflow =	1.67 cfs @	17.14 hrs, Volume=	2.796 af, Atten= 85%, Lag= 427.5 min	
Primary =	1.67 cfs @	17.14 hrs, Volume=	2.796 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.40' @ 17.14 hrs Surf.Area= 48,306 sf Storage= 59,849 cf

Plug-Flow detention time= 480.2 min calculated for 2.792 af (89% of inflow)
Center-of-Mass det. time= 417.0 min (1,247.7 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.67 cfs @ 17.14 hrs HW=211.40' (Free Discharge)
└**4=Orifice/Grate** (Passes 1.67 cfs of 6.47 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.67 cfs @ 4.79 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Hidden Canyon June 1, 2017 Type I 24-hr SM-10 Rainfall= 3.15"
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Summary for Pond 1: East Basin

Inflow Area = 42.207 ac, 38.92% Impervious, Inflow Depth = 1.22" for 10 YEAR event
Inflow = 15.15 cfs @ 10.01 hrs, Volume= 4.302 af
Outflow = 2.10 cfs @ 18.34 hrs, Volume= 3.775 af, Atten= 86%, Lag= 499.7 min
Primary = 2.10 cfs @ 18.34 hrs, Volume= 3.775 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.98' @ 18.34 hrs Surf.Area= 51,023 sf Storage= 88,434 cf

Plug-Flow detention time= 530.6 min calculated for 3.775 af (88% of inflow)
Center-of-Mass det. time= 458.5 min (1,286.2 - 827.7)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.10 cfs @ 18.34 hrs HW=211.98' (Free Discharge)
└**4=Orifice/Grate** (Passes 2.10 cfs of 9.12 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 2.10 cfs @ 6.03 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Hidden Canyon June 1, 2017 Type I 24-hr SM-25 Rainfall= 3.81"
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Summary for Pond 1: East Basin

Inflow Area = 42.207 ac, 38.92% Impervious, Inflow Depth = 1.68" for 25 YEAR event
Inflow = 21.02 cfs @ 10.02 hrs, Volume= 5.898 af
Outflow = 2.59 cfs @ 19.47 hrs, Volume= 4.908 af, Atten= 88%, Lag= 567.3 min
Primary = 2.59 cfs @ 19.47 hrs, Volume= 4.908 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 212.79' @ 19.47 hrs Surf.Area= 54,932 sf Storage= 131,482 cf

Plug-Flow detention time= 584.9 min calculated for 4.901 af (83% of inflow)
Center-of-Mass det. time= 490.1 min (1,313.0 - 822.9)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.59 cfs @ 19.47 hrs HW=212.79' (Free Discharge)
└**4=Orifice/Grate** (Passes 2.59 cfs of 11.92 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 2.59 cfs @ 7.43 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Hidden Canyon June 1, 2017 Type I 24-hr SM-100 Rainfall= 4.76"
Prepared by Bethel Engineering Printed 06/01/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond 1: East Basin

Inflow Area = 42.207 ac, 38.92% Impervious, Inflow Depth = 2.39" for 100 YEAR event
Inflow = 30.54 cfs @ 10.02 hrs, Volume= 8.396 af
Outflow = 3.73 cfs @ 18.77 hrs, Volume= 6.491 af, Atten= 88%, Lag= 525.4 min
Primary = 3.73 cfs @ 18.77 hrs, Volume= 6.491 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 213.96' @ 18.77 hrs Surf.Area= 60,710 sf Storage= 198,960 cf

Plug-Flow detention time= 625.2 min calculated for 6.482 af (77% of inflow)
Center-of-Mass det. time= 502.9 min (1,318.9 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	210.08'	264,871 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
210.08	42,115	0	0
211.00	46,398	40,716	40,716
212.00	51,119	48,759	89,474
213.00	55,932	53,526	143,000
214.00	60,912	58,422	201,422
215.00	65,987	63,450	264,871

Device	Routing	Invert	Outlet Devices
#1	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Device 4	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.72 cfs @ 18.77 hrs HW=213.96' (Free Discharge)
└**4=Orifice/Grate** (Passes 3.72 cfs of 15.05 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 3.17 cfs @ 9.07 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.56 cfs @ 1.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=210.08' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Basin

Hydrograph for Pond 1: East Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	210.08	0.00	0.00	**0.00**
1.00	0.10	72	210.08	0.00	0.00	0.00
2.00	0.34	916	210.10	0.01	0.01	0.00
3.00	0.52	2,434	210.14	0.01	0.01	0.00
4.00	0.68	4,496	210.19	0.04	0.04	0.00
5.00	0.78	6,900	210.24	0.09	0.09	0.00
6.00	0.85	9,375	210.30	0.16	0.16	0.00
7.00	1.18	12,134	210.36	0.26	0.26	0.00
8.00	1.67	16,059	210.45	0.42	0.42	0.00
9.00	3.56	22,834	210.61	0.73	0.73	0.00
10.00	**30.36**	52,521	211.25	1.54	1.54	0.00
11.00	14.00	120,369	212.59	2.48	2.48	0.00
12.00	9.14	150,891	213.14	2.78	2.78	0.00
13.00	7.05	169,340	213.46	2.93	2.93	0.00
14.00	5.60	181,309	213.67	3.03	3.03	0.00
15.00	4.81	188,754	213.79	3.09	3.09	0.00
16.00	4.46	193,955	213.88	3.31	3.31	0.00
17.00	4.19	197,137	213.93	3.56	3.56	0.00
18.00	3.93	**198,653**	**213.95**	**3.70**	**3.70**	0.00
19.00	3.67	**198,939**	**213.96**	**3.73**	**3.73**	0.00
20.00	3.40	198,330	213.95	3.67	3.67	0.00
21.00	3.12	197,061	213.93	3.55	3.55	0.00
22.00	2.83	195,276	213.90	3.40	3.40	0.00
23.00	2.54	192,984	213.86	3.24	3.24	0.00
24.00	2.24	190,188	213.81	3.11	3.11	0.00
25.00	0.48	183,176	213.70	3.05	3.05	0.00
26.00	0.12	173,273	213.53	2.97	2.97	0.00
27.00	0.03	162,984	213.35	2.88	2.88	0.00
28.00	0.01	152,834	213.17	2.79	2.79	0.00
29.00	0.00	142,958	213.00	2.70	2.70	0.00
30.00	0.00	133,398	212.83	2.61	2.61	0.00
31.00	0.00	124,166	212.66	2.52	2.52	0.00
32.00	0.00	115,270	212.49	2.42	2.42	0.00
33.00	0.00	106,716	212.33	2.33	2.33	0.00
34.00	0.00	98,510	212.18	2.23	2.23	0.00
35.00	0.00	90,655	212.02	2.13	2.13	0.00
36.00	0.00	83,158	211.88	2.03	2.03	0.00

From the table above, of 100-year storm event, around 10.00 hours you can see as the inflow of the basin is the highest at 30.36 cfs. Even though the inflow is at its highest at the 10th hour the basin doesn't reach its highest storage until the 19th hour. All, no longer allowing Highway 1 into the basin, of the flow is contained that of the project itself. The basin is large enough to withhold its largest storm.

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APPENDIX F

25-Year storm event Calculations for
Santa Barbara County Flood Control District Criteria

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Site Areas: 43.72 acres (1,904,539 square feet)

Flood Control 25-Year storm event Equations:

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre}$$

Flood Control 25-Year storm event calculations:

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre}$$

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre} \times 43.72\ acres$$

$$\boldsymbol{Runoff_{25\ year}\ (cfs) = 3.06\ cfs}$$

25-Year Storm Event from HydroCAD:

Event	Pre-development Total (cfs)	Post-development Total (cfs)	Pre>Post	Difference (cfs)
25- Yr (HydroCAD)	27.06	2.59	YES	-24.47

25-Year Storm Event HydroCAD vs Flood Control:

Event	Post-development (HydroCAD) Total (cfs)	Post-development (Flood Control) Total (cfs)	Is Post Runoff Hydro CAD less than Post Runoff Flood Control	Difference (cfs)
25- Yr	2.59	3.06	YES	-0.47

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BASIN HYDROLOGY REPORT

for

WILLOW CREEK
Santa Barbara County, CA

June 1, 2017

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INTRODUCTION

The proposed tract is located in the Santa Barbara County. The site is bounded by Highway 1/Cabrillo Highway to the north, by farm land to the west, by dry grassland to the south, and by Rancho Maria Golf Club to the east. The property covers 70.00 acres. The property is currently undeveloped and consists of some trees and plants and gently slops down south to north. Only 40.69 acres of the property will be disturbed. For the purpose of the projects calculations only the 40.69 acres that will be disturbed will be considered. The remaining 29.31 acres will be left as is. See Vicinity Map, Appendix B.

The Willow Creek development proposes 90 family homes. There is drainage improvements required as part of this development. There is a gully on the north east side of A.P.N. 113-250-017. The gully will need to be filled to practical slopes for appropriate land use for the project. There is a gully and a creek wash to the west of the project but the proposed project will not affect either one in order to make any modifications for the project. There will be 2 basins and 5 bio-retentions constructed for the storm water drainage. The following report and calculations show how the basins and bio-retention will work for this project and contain all runoff.

PREDEVELOPMENT FLOWS

Predevelopment flows are based on the currently undeveloped area, south of Highway 1 and west of the Rancho Maria Golf Club.

Predevelopment Flows:
Area 2.0 = 40.69 acres
CN Selected = 79, Based on HSG B, Pasture/grassland/range, Poor
Tc= 46.9 Min

Events for Subcatchment 2.0: PreWestNative

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 YEAR	2.86	1.347	0.42
5 YEAR	8.99	2.982	0.92
10 YEAR	13.86	4.217	1.30
25 YEAR	20.52	5.876	1.81
100 YEAR	**30.86**	**8.426**	**2.60**

See **Appendix D** for more detailed calculations

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POST DEVELOPMENT: TRIBUTARY AREAS

The on-site tributary areas are defined as follows. See Appendix C for Drainage Map.

Area 2.1- Area 2.1 is all landscape that will be disturbed throughout the site. Most of the landscape in this area is the sloped area outside of the individual lots.

The developed tributary flows are as follows:

Area=115,462 SF

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.01 cfs @ 20.65 hrs, Volume= 0.009 af, Depth= 0.04"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
115,462	61	>75% Grass cover, Good, HSG B
115,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
57.8	3,000	0.0500	0.87		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.05 cfs @ 13.33 hrs, Volume= 0.051 af, Depth= 0.23"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
115,462	61	>75% Grass cover, Good, HSG B
115,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
57.8	3,000	0.0500	0.87		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.10 cfs @ 11.95 hrs, Volume= 0.094 af, Depth= 0.42"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
115,462	61	>75% Grass cover, Good, HSG B
115,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
57.8	3,000	0.0500	0.87		**Lag/CN Method,**

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Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.22 cfs @ 10.68 hrs, Volume= 0.159 af, Depth= 0.72"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
115,462	61	>75% Grass cover, Good, HSG B
115,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
57.8	3,000	0.0500	0.87		**Lag/CN Method,**

Summary for Subcatchment 2.1: Post Disturbed Landscape

Runoff = 0.48 cfs @ 10.41 hrs, Volume= 0.271 af, Depth= 1.23"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
115,462	61	>75% Grass cover, Good, HSG B
115,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
57.8	3,000	0.0500	0.87		**Lag/CN Method,**

Area 2.2- Area 2.2 is the roads and decomposed granite sidewalk. Flows from this area flow through a series of pipes that lead to proposed basin A & B.

The developed tributary flows are as follows:

Area=326,920 SF

Summary for Subcatchment 2.2: West Roads

Runoff = 6.05 cfs @ 9.99 hrs, Volume= 0.992 af, Depth= 1.59"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
326,920	98	Paved roads w/curbs & sewers, HSG B
326,920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	2,255	0.0400	2.60		**Lag/CN Method,**

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Summary for Subcatchment 2.2: West Roads

Runoff = 8.97 cfs @ 9.99 hrs, Volume= 1.495 af, Depth= 2.39"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
326,920	98	Paved roads w/curbs & sewers, HSG B
326,920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	2,255	0.0400	2.60		**Lag/CN Method,**

Summary for Subcatchment 2.2: West Roads

Runoff = 10.87 cfs @ 9.99 hrs, Volume= 1.825 af, Depth= 2.92"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
326,920	98	Paved roads w/curbs & sewers, HSG B
326,920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	2,255	0.0400	2.60		**Lag/CN Method,**

Summary for Subcatchment 2.2: West Roads

Runoff = 13.23 cfs @ 9.99 hrs, Volume= 2.236 af, Depth= 3.58"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
326,920	98	Paved roads w/curbs & sewers, HSG B
326,920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	2,255	0.0400	2.60		**Lag/CN Method,**

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Summary for Subcatchment 2.2: West Roads

Runoff = 16.61 cfs @ 9.99 hrs, Volume= 2.829 af, Depth= 4.52"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
326,920	98	Paved roads w/curbs & sewers, HSG B
326,920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	2,255	0.0400	2.60		**Lag/CN Method,**

Area 2.3- Area 2.3 is the lots. Flows from this area flow down to the roads and through a series of pipes that lead to proposed basin A & B.

The developed tributary flows are as follows:

Area=987,518 SF

Summary for Subcatchment 2.3: West Lots

Runoff = 0.79 cfs @ 10.49 hrs, Volume= 0.552 af, Depth= 0.29"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
987,518	75	1/4 acre lots, 38% imp, HSG B
612,261		62.00% Pervious Area
375,257		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.4	2,500	0.0400	1.09		**Lag/CN Method,**

Summary for Subcatchment 2.3: West Lots

Runoff = 3.24 cfs @ 10.10 hrs, Volume= 1.363 af, Depth= 0.72"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
987,518	75	1/4 acre lots, 38% imp, HSG B
612,261		62.00% Pervious Area
375,257		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.4	2,500	0.0400	1.09		**Lag/CN Method,**

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Summary for Subcatchment 2.3: West Lots

Runoff = 5.56 cfs @ 10.07 hrs, Volume= 2.003 af, Depth= 1.06"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
987,518	75	1/4 acre lots, 38% imp, HSG B
612,261		62.00% Pervious Area
375,257		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.4	2,500	0.0400	1.09		**Lag/CN Method,**

Summary for Subcatchment 2.3: West Lots

Runoff = 8.84 cfs @ 10.06 hrs, Volume= 2.882 af, Depth= 1.53"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
987,518	75	1/4 acre lots, 38% imp, HSG B
612,261		62.00% Pervious Area
375,257		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.4	2,500	0.0400	1.09		**Lag/CN Method,**

Summary for Subcatchment 2.3: West Lots

Runoff = 14.09 cfs @ 10.05 hrs, Volume= 4.262 af, Depth= 2.26"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
987,518	75	1/4 acre lots, 38% imp, HSG B
612,261		62.00% Pervious Area
375,257		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.4	2,500	0.0400	1.09		**Lag/CN Method,**

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Area 2.4- Area 2.4 is an entrance section of curb, gutter, and road. Flows from this area are directed to the first bio-retention area.

The Developed tributary area flows are as follows:

Area = 17,429 SF

Summary for Subcatchment 2.4: Roadway Particial

Runoff = 0.29 cfs @ 9.99 hrs, Volume= 0.043 af, Depth= 1.30"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
16,551	98	Paved roads w/curbs & sewers, HSG B
878	39	>75% Grass cover, Good, HSG A
17,429	95	Weighted Average
878		5.04% Pervious Area
16,551		94.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.4: Roadway Particial

Runoff = 0.46 cfs @ 9.98 hrs, Volume= 0.069 af, Depth= 2.08"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
16,551	98	Paved roads w/curbs & sewers, HSG B
878	39	>75% Grass cover, Good, HSG A
17,429	95	Weighted Average
878		5.04% Pervious Area
16,551		94.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.4: Roadway Particial

Runoff = 0.58 cfs @ 9.98 hrs, Volume= 0.087 af, Depth= 2.60"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
16,551	98	Paved roads w/curbs & sewers, HSG B
878	39	>75% Grass cover, Good, HSG A
17,429	95	Weighted Average
878		5.04% Pervious Area
16,551		94.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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Summary for Subcatchment 2.4: Roadway Particial

Runoff = 0.72 cfs @ 9.98 hrs, Volume= 0.108 af, Depth= 3.24"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
16,551	98	Paved roads w/curbs & sewers, HSG B
878	39	>75% Grass cover, Good, HSG A
17,429	95	Weighted Average
878		5.04% Pervious Area
16,551		94.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.4: Roadway Particial

Runoff = 0.91 cfs @ 9.98 hrs, Volume= 0.139 af, Depth= 4.18"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
16,551	98	Paved roads w/curbs & sewers, HSG B
878	39	>75% Grass cover, Good, HSG A
17,429	95	Weighted Average
878		5.04% Pervious Area
16,551		94.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Area 2.5 – Area 2.5 is an entrance section of curb, gutter, and road. Flows from this area will be directed to the second bio-retention area. The water collected from the first bio-retention area will also flow to the second bio-retention.

The Developed tributary area flows are as follows:
Area = 7,165 SF

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Summary for Subcatchment 2.5: roadway particial

Runoff = 0.10 cfs @ 9.99 hrs, Volume= 0.015 af, Depth= 1.07"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.5: roadway particial

Runoff = 0.17 cfs @ 9.99 hrs, Volume= 0.025 af, Depth= 1.80"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.5: roadway particial

Runoff = 0.21 cfs @ 9.99 hrs, Volume= 0.032 af, Depth= 2.30"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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Summary for Subcatchment 2.5: roadway particial

Runoff = 0.27 cfs @ 9.98 hrs, Volume= 0.040 af, Depth= 2.93"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.5: roadway particial

Runoff = 0.35 cfs @ 9.98 hrs, Volume= 0.053 af, Depth= 3.86"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Area 2.6- Area 2.6 is an entrance section of curb, gutter, and road. Flows from this area will be directed to the third bio-retention area. The water collected from the first and second bio-retention area will also flow to the third bio-retention.

The Developed tributary area flows are as follows:
Area = 7,165 SF

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Summary for Subcatchment 2.6: roadway partial

Runoff = 0.10 cfs @ 9.99 hrs, Volume= 0.015 af, Depth= 1.07"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.6: roadway partial

Runoff = 0.17 cfs @ 9.99 hrs, Volume= 0.025 af, Depth= 1.80"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.6: roadway partial

Runoff = 0.21 cfs @ 9.99 hrs, Volume= 0.032 af, Depth= 2.30"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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Summary for Subcatchment 2.6: roadway particial

Runoff = 0.27 cfs @ 9.98 hrs, Volume= 0.040 af, Depth= 2.93"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.6: roadway particial

Runoff = 0.35 cfs @ 9.98 hrs, Volume= 0.053 af, Depth= 3.86"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Area 2.7 – Area 2.7 is an entrance section of curb, gutter, and road. Flows from this area will be directed to the fourth bio-retention area. The water collected from the first through the third bio-retention area will also flow to the fourth bio-retention.

The Developed tributary area flows are as follows:
Area = 7,165 SF

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Summary for Subcatchment 2.7: roadway partial

Runoff = 0.10 cfs @ 9.99 hrs, Volume= 0.015 af, Depth= 1.07"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.7: roadway partial

Runoff = 0.17 cfs @ 9.99 hrs, Volume= 0.025 af, Depth= 1.80"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.7: roadway partial

Runoff = 0.21 cfs @ 9.99 hrs, Volume= 0.032 af, Depth= 2.30"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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BETHEL ENGINEERING
2624 Airpark Drive
Santa Maria, California 93455
(805) 934-5767 FAX (805) 934-3448

Summary for Subcatchment 2.7: roadway particial

Runoff = 0.27 cfs @ 9.98 hrs, Volume= 0.040 af, Depth= 2.93"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.7: roadway particial

Runoff = 0.35 cfs @ 9.98 hrs, Volume= 0.053 af, Depth= 3.86"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
6,000	98	Paved roads w/curbs & sewers, HSG B
1,165	61	>75% Grass cover, Good, HSG B
7,165	92	Weighted Average
1,165		16.26% Pervious Area
6,000		83.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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Area 2.8 – Area 2.8 is an entrance section of curb, gutter, and road. Flows from this area will be directed to the fifth bio-retention area. The water collected from the first through the fourth bio-retention area will also flow to the fifth bio-retention.

The Developed tributary area flows are as follows:
Area = 7,580 SF

Summary for Subcatchment 2.8: roadway particial

Runoff = 0.12 cfs @ 9.99 hrs, Volume= 0.018 af, Depth= 1.22"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (sf)	CN	Description
6,800	98	Paved roads w/curbs & sewers, HSG B
780	61	>75% Grass cover, Good, HSG B
7,580	94	Weighted Average
780		10.29% Pervious Area
6,800		89.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.8: roadway particial

Runoff = 0.19 cfs @ 9.98 hrs, Volume= 0.029 af, Depth= 1.98"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (sf)	CN	Description
6,800	98	Paved roads w/curbs & sewers, HSG B
780	61	>75% Grass cover, Good, HSG B
7,580	94	Weighted Average
780		10.29% Pervious Area
6,800		89.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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Summary for Subcatchment 2.8: roadway particial

Runoff = 0.24 cfs @ 9.98 hrs, Volume= 0.036 af, Depth= 2.50"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (sf)	CN	Description
6,800	98	Paved roads w/curbs & sewers, HSG B
780	61	>75% Grass cover, Good, HSG B
7,580	94	Weighted Average
780		10.29% Pervious Area
6,800		89.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.8: roadway particial

Runoff = 0.30 cfs @ 9.98 hrs, Volume= 0.046 af, Depth= 3.14"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (sf)	CN	Description
6,800	98	Paved roads w/curbs & sewers, HSG B
780	61	>75% Grass cover, Good, HSG B
7,580	94	Weighted Average
780		10.29% Pervious Area
6,800		89.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

Summary for Subcatchment 2.8: roadway particial

Runoff = 0.39 cfs @ 9.98 hrs, Volume= 0.059 af, Depth= 4.07"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (sf)	CN	Description
6,800	98	Paved roads w/curbs & sewers, HSG B
780	61	>75% Grass cover, Good, HSG B
7,580	94	Weighted Average
780		10.29% Pervious Area
6,800		89.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

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PROPOSED DESIGN

The proposed development will be designed to convey all site-generated storm water to 2 onsite retardation basins and 5 bio-retention areas that are located northwest of the site.

Santa Barbara County Flood Control District (SBCFCD) limits post-development discharge to 0.07 cubic feet per second (cfs) per acre for 25-year storm events. This rate approximates discharge from natural, undeveloped site for this project vicinity, and therefore approximates maximum post-development runoff rates based on the future disturbed area. The storm water detention facility will attenuate the 2, 5, 10, 25, and 100-year storms and discharge at or below existing drainage conditions in order to meet the post-development runoff criteria set forth by the SBCFCD. In order to mimic existing drainage conditions the storm water runoff will be captured and slowly released from the basin. By slowly releasing the runoff this will prevent increased peak flows, soil erosion, and flooding. The basin and bio-retention areas were designed using Hydro CAD software accounting for the flows.

The following information is a summary report of the basin and bio-retention areas.

Basin A Dimensions:

	Elevation	Area	Perimeter
Basin Bottom	233.25	16,875 SF	675 LF
0.75' Depth	234.00	19,091 SF	709 LF
1.75' Depth	235.00	22,176 SF	760 LF
2.75' Depth	236.00	25,479 SF	829 LF
3.75' Depth	237.00	28,968 SF	860 LF
4.75' Depth	238.00	32,508 SF	891 LF

Basin B Dimensions:

	Elevation	Area	Perimeter
Basin Bottom	233.25	19,408 SF	610 LF
0.75' Depth	234.00	21,337 SF	639 LF
1.75' Depth	235.00	24,037 SF	670 LF
2.75' Depth	236.00	26,854 SF	699 LF
3.75' Depth	237.00	29,787 SF	728 LF
4.75' Depth	237.00	32,837 SF	757 LF

Events for Pond 1: East Basin

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	6.58	0.93	233.96	27,279
5 YEAR	12.04	1.46	234.69	58,009
10 YEAR	16.26	1.77	235.27	84,721
25 YEAR	21.99	2.11	236.05	123,768
100 YEAR	30.85	5.36	236.44	144,876
25 YEAR (0.07 cfs/acre)	*NA*	*2.73*	*NA*	*NA*

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Basin A & B contains most of the project's runoff except for the entrance road to the neighborhood. The rest of the runoff is contained by 5 onsite bio-retention designed to contain the entrance road runoff. The following is a summary report of bio-retention 1 through 5.

Bio-retention(s):

	Bottom Elevation	Depth	Area	Perimeter
1	224.00	3.50'	1,500 SF	230 LF
2	220.87	3.50'	1,125 SF	180 LF
3	217.70	3.50'	1,125 SF	180 LF
4	214.50	3.50'	1,125 SF	180 LF
5	209.30	3.50'	1,500 SF	230 LF

Events for Pond BIO 1: Road Bio

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	0.29	0.06	224.95	569
5 YEAR	0.46	0.07	225.66	993
10 YEAR	0.58	0.08	226.06	1,297
25 YEAR	0.72	0.17	226.27	1,602
100 YEAR	**0.91**	**0.54**	**226.32**	**1,674**

Events for Pond BIO 2: Road Bio

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	0.14	0.06	221.86	445
5 YEAR	0.22	0.08	222.63	791
10 YEAR	0.28	0.09	223.01	1,061
25 YEAR	0.34	0.12	223.19	1,259
100 YEAR	**0.74**	**0.54**	**223.25**	**1,324**

Events for Pond BIO 3: Road Bio

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	0.13	0.06	218.79	492
5 YEAR	0.21	0.08	219.67	886
10 YEAR	0.27	0.09	220.01	1,244
25 YEAR	0.33	0.13	220.16	1,417
100 YEAR	**0.68**	**0.53**	**220.21**	**1,463**

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Events for Pond BIO 4: Road Bio

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	0.13	0.06	215.71	544
5 YEAR	0.21	0.08	216.59	1,004
10 YEAR	0.27	0.10	216.75	1,185
25 YEAR	0.33	0.15	216.77	1,198
100 YEAR	**0.62**	**0.51**	**216.81**	**1,252**

Events for Pond BIO 5: Road Bio

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 YEAR	0.15	0.07	210.58	769
5 YEAR	0.24	0.08	211.41	1,365
10 YEAR	0.30	0.10	211.70	1,806
25 YEAR	0.37	0.16	211.72	1,833
100 YEAR	**0.59**	**0.42**	**211.77**	**1,898**

See Appendix E for addition information.
See Appendix F for 25-year storm event calculations for flood control.

The following is a table comparing post-development runoff to pre-development runoff.

Event	Predevelopment Total (cfs)	Post-development			Pre>Post	Difference
		Basin A & B	Bio-retention	Total (cfs)		
2- Yr	2.86	0.93	0.07	1.00	YES	-1.86
5- Yr	8.99	1.46	0.08	1.54	YES	-7.45
10- Yr	13.86	1.77	0.10	1.87	YES	-11.99
25- Yr	20.52	2.11	0.16	2.27	YES	-18.25
100- Yr	30.86	5.36	0.42	5.78	YES	-25.08
25-Yr (0.07 cfs/acre)	N/A	N/A	N/A	2.73	N/A	N/A

Table 1: Summary of Pre-development to post-development runoff (cfs).

In conclusion, Table 1 shows that even in the events of a 2, 5, 10, 25, and 100 year storm the post-development runoff caused by the proposed project does not exceed that of the existing pre-development conditions into the golf course and does not divert from historical drainage patterns. The project also meets the Santa Barbara County Flood Control District (SBCFCD) limit post-development discharge of less than 2.73 cfs for a 25-year storm event.

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Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 1.93" for 25 YEAR event
Inflow = 21.99 cfs @ 10.01 hrs, Volume= 5.277 af
Outflow = 2.11 cfs @ 19.91 hrs, Volume= 4.190 af, Atten= 90%, Lag= 594.4 min
Primary = 2.11 cfs @ 19.91 hrs, Volume= 4.190 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 236.05' @ 19.91 hrs Surf.Area= 52,628 sf Storage= 123,768 cf

Plug-Flow detention time= 621.1 min calculated for 4.184 af (79% of inflow)
Center-of-Mass det. time= 507.6 min (1,313.0 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.11 cfs @ 19.91 hrs HW=236.05' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Orifice/Grate** (Passes 2.11 cfs of 12.89 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 2.11 cfs @ 7.75 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

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PROPOSED CULTVERT DESIGN

We propose to use 1 box culvert to convey flows under the proposed roadway. Therefore, the estimated Q_{100} flows of 91.36 cfs were calculated for the proposed culverts.

Q_{100} = 91.36 cfs

The culverts were evaluated as rectangular open channel as follows:

Bottom Width	= 8’
n Value	= 0.015
S (Btm Slope)	= 0.069
Depth of flow	= 0.65’

Santa Barbara County Flood Control Standards require 2’ of freeboard above the Q_{100} high water elevation for bridge crossings. Culvert height selected is 4.00’, this is due to an 8’x4’ rectangular culvert is readily available. See Appendix G for location of culvert.

```
Program   C H A N N E L . E X E    SBCFCD
Flow=     91cfs, Base=   8.0ft, Side Slope=  0.00, n=0.015, Btm Slope=0.06900
Dn= 0.65 ft,  Vn=17.61 ft/sec,   P+M=    52 cu ft,   Fr= 3.86,   Dc=  1.59 ft

--------------------------------------------------------------------------------

      Flow in RECTANGULAR Channel

     Normal Depth    =   0.65 ft
     Normal  Vel     =  17.61 ft/sec
     V*V/2G          =   4.82 ft
     V*V/2G+Depth    =   5.47 ft
     P  +  M         =     52 cu-ft
     Froude Nr.      =   3.86
     Critical Depth  =   1.59 ft

     Steep Slope. 'S' Profiles
```

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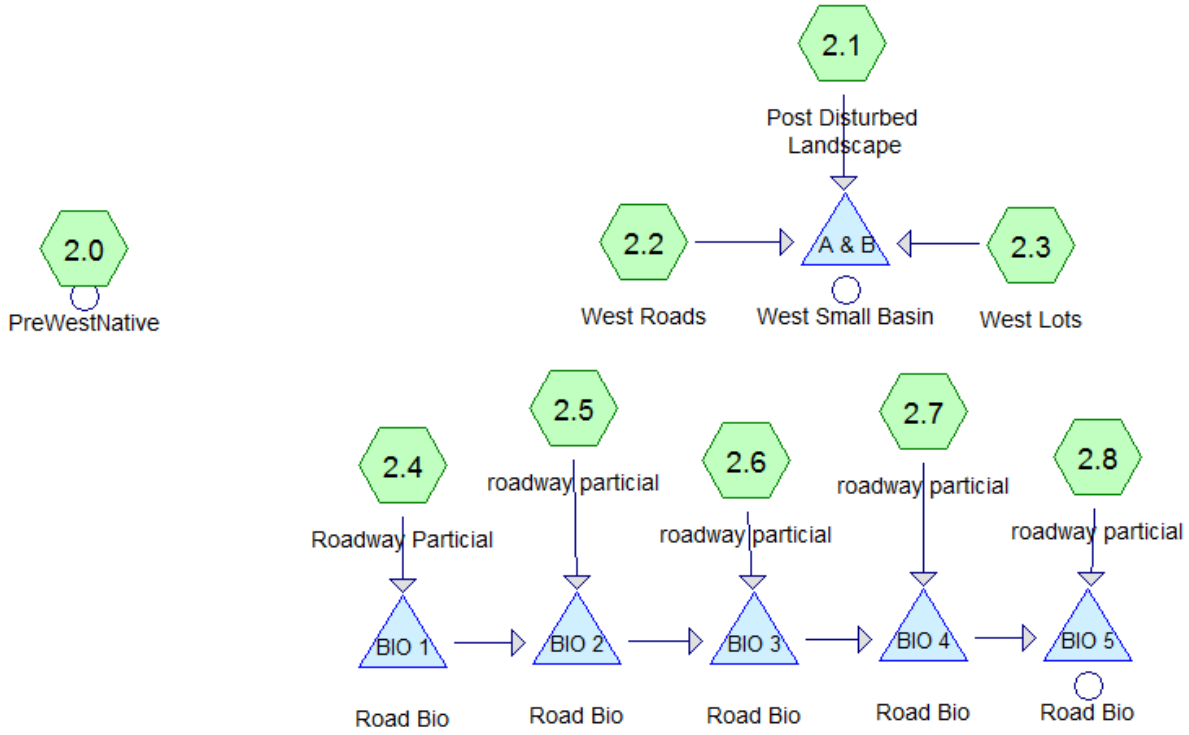
APPENDIX A

Hydro CAD Routing Diagram



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APPENDIX B

Vicinity Map

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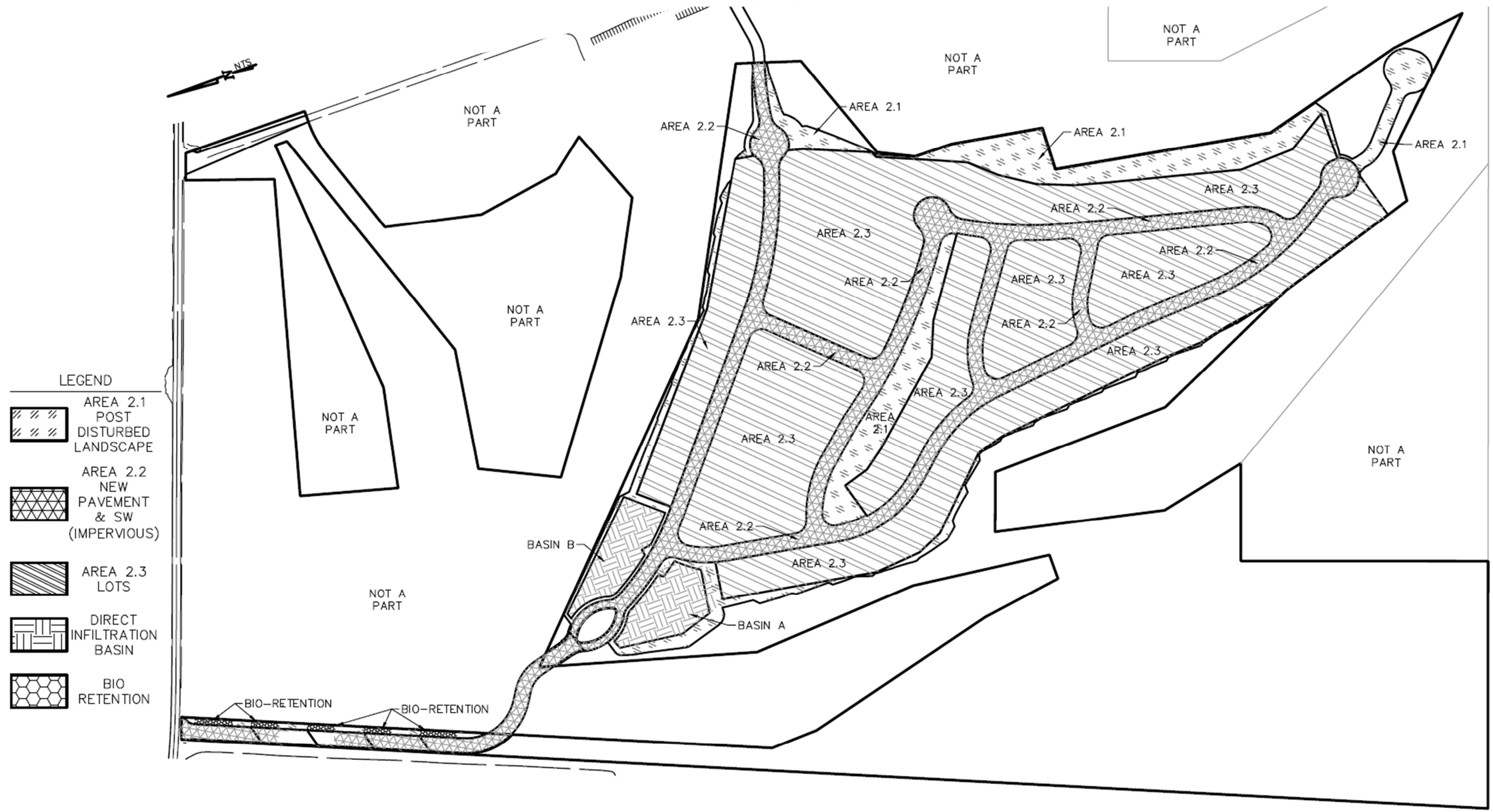
APPENDIX C
Drainage Map



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APPENDIX D

Pre-Development Hydro CAD Calculations

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Pre-development Tributary Area:

Summary for Subcatchment 2.0: PreWestNative

Runoff = 2.99 cfs @ 10.20 hrs, Volume= 1.408 af, Depth= 0.42"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 2 YEAR Rainfall=1.81"

Area (ac)	CN	Description
40.690	79	Pasture/grassland/range, Poor, HSG B
40.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	3,000	0.0500	1.42		**Lag/CN Method,**

Summary for Subcatchment 2.0: PreWestNative

Runoff = 9.40 cfs @ 10.06 hrs, Volume= 3.116 af, Depth= 0.92"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 5 YEAR Rainfall=2.62"

Area (ac)	CN	Description
40.690	79	Pasture/grassland/range, Poor, HSG B
40.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	3,000	0.0500	1.42		**Lag/CN Method,**

Summary for Subcatchment 2.0: PreWestNative

Runoff = 14.49 cfs @ 10.05 hrs, Volume= 4.406 af, Depth= 1.30"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 10 YEAR Rainfall=3.15"

Area (ac)	CN	Description
40.690	79	Pasture/grassland/range, Poor, HSG B
40.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	3,000	0.0500	1.42		**Lag/CN Method,**

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Summary for Subcatchment 2.0: PreWestNative

Runoff = 21.44 cfs @ 10.04 hrs, Volume= 6.139 af, Depth= 1.81"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 25 YEAR Rainfall=3.81"

Area (ac)	CN	Description
40.690	79	Pasture/grassland/range, Poor, HSG B
40.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	3,000	0.0500	1.42		**Lag/CN Method,**

Summary for Subcatchment 2.0: PreWestNative

Runoff = 32.24 cfs @ 10.04 hrs, Volume= 8.803 af, Depth= 2.60"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type I 24-hr 100 YEAR Rainfall=4.76"

Area (ac)	CN	Description
40.690	79	Pasture/grassland/range, Poor, HSG B
40.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	3,000	0.0500	1.42		**Lag/CN Method,**

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APPENDIX E

Post-Development Hydro CAD Calculations

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Basin A & B:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 0.57" for 2 YEAR event
Inflow = 6.58 cfs @ 10.00 hrs, Volume= 1.553 af
Outflow = 0.93 cfs @ 14.36 hrs, Volume= 1.425 af, Atten= 86%, Lag= 261.4 min
Primary = 0.93 cfs @ 14.36 hrs, Volume= 1.425 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 233.96' @ 14.36 hrs Surf.Area= 40,224 sf Storage= 27,279 cf

Plug-Flow detention time= 418.3 min calculated for 1.425 af (92% of inflow)
Center-of-Mass det. time= 368.1 min (1,184.0 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.93 cfs @ 14.36 hrs HW=233.96' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Orifice/Grate** (Passes 0.93 cfs of 4.01 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.93 cfs @ 3.42 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Willow Creek June 1, 2017 Type I 24-hr SM-5 Rainfall= 2.62"

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Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 1.06" for 5 YEAR event
Inflow = 12.04 cfs @ 10.00 hrs, Volume= 2.910 af
Outflow = 1.46 cfs @ 17.42 hrs, Volume= 2.623 af, Atten= 88%, Lag= 445.1 min
Primary = 1.46 cfs @ 17.42 hrs, Volume= 2.623 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 234.69' @ 17.42 hrs Surf.Area= 44,416 sf Storage= 58,009 cf

Plug-Flow detention time= 511.4 min calculated for 2.623 af (90% of inflow)
Center-of-Mass det. time= 451.9 min (1,265.8 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.46 cfs @ 17.42 hrs HW=234.69' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Orifice/Grate** (Passes 1.46 cfs of 8.25 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 1.46 cfs @ 5.34 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 1.43" for 10 YEAR event
Inflow = 16.26 cfs @ 10.01 hrs, Volume= 3.921 af
Outflow = 1.77 cfs @ 18.74 hrs, Volume= 3.364 af, Atten= 89%, Lag= 523.8 min
Primary = 1.77 cfs @ 18.74 hrs, Volume= 3.364 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 235.27' @ 18.74 hrs Surf.Area= 47,857 sf Storage= 84,721 cf

Plug-Flow detention time= 567.2 min calculated for 3.364 af (86% of inflow)
Center-of-Mass det. time= 484.3 min (1,294.6 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.77 cfs @ 18.74 hrs HW=235.27' (Free Discharge)
└─1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─4=**Orifice/Grate** (Passes 1.77 cfs of 10.49 cfs potential flow)
  └─2=**Orifice/Grate** (Orifice Controls 1.77 cfs @ 6.48 fps)
  └─3=**Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 1.93" for 25 YEAR event
Inflow = 21.99 cfs @ 10.01 hrs, Volume= 5.277 af
Outflow = 2.11 cfs @ 19.91 hrs, Volume= 4.190 af, Atten= 90%, Lag= 594.4 min
Primary = 2.11 cfs @ 19.91 hrs, Volume= 4.190 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 236.05' @ 19.91 hrs Surf.Area= 52,628 sf Storage= 123,768 cf

Plug-Flow detention time= 621.1 min calculated for 4.184 af (79% of inflow)
Center-of-Mass det. time= 507.6 min (1,313.0 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.11 cfs @ 19.91 hrs HW=236.05' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Orifice/Grate** (Passes 2.11 cfs of 12.89 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 2.11 cfs @ 7.75 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond A & B: West Small Basin

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 2.69" for 100 YEAR event
Inflow = 30.85 cfs @ 10.01 hrs, Volume= 7.362 af
Outflow = 5.37 cfs @ 13.37 hrs, Volume= 6.138 af, Atten= 83%, Lag= 201.5 min
Primary = 5.37 cfs @ 13.37 hrs, Volume= 6.138 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 236.44' @ 13.37 hrs Surf.Area= 55,143 sf Storage= 144,876 cf

Plug-Flow detention time= 500.5 min calculated for 6.138 af (83% of inflow)
Center-of-Mass det. time= 405.3 min (1,204.1 - 798.8)

Volume	Invert	Avail.Storage	Storage Description
#1	233.25'	115,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.25'	123,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		238,954 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	16,875	0	0
234.00	19,091	13,487	13,487
235.00	22,176	20,634	34,121
236.00	25,479	23,828	57,948
237.00	28,968	27,224	85,172
238.00	32,508	30,738	115,910

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.25	19,408	0	0
234.00	21,337	15,279	15,279
235.00	24,037	22,687	37,966
236.00	26,854	25,446	63,412
237.00	29,787	28,321	91,732
238.00	32,837	31,312	123,044

Device	Routing	Invert	Outlet Devices
#1	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Device 4	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 4	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#4	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=5.36 cfs @ 13.37 hrs HW=236.44' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Orifice/Grate** (Passes 5.36 cfs of 13.95 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 2.27 cfs @ 8.31 fps)
  └─**3=Orifice/Grate** (Orifice Controls 3.10 cfs @ 2.00 fps)

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BETHEL ENGINEERING
2624 Airpark Drive
Santa Maria, California 93455
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Basin A & B

Hydrograph for Pond A & B: West Small Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	233.25	0.00
1.00	0.11	81	233.25	0.00
2.00	0.35	952	233.28	0.01
3.00	0.52	2,456	233.32	0.03
4.00	0.68	4,429	233.37	0.08
5.00	0.77	6,624	233.43	0.17
6.00	0.84	8,755	233.49	0.27
7.00	1.19	11,093	233.55	0.39
8.00	1.68	14,568	233.64	0.56
9.00	3.68	21,205	233.81	0.78
10.00	**30.81**	52,216	234.56	1.38
11.00	11.82	114,526	235.87	2.04
12.00	7.55	138,081	236.31	3.96
13.00	5.83	**144,547**	**236.43**	**5.30**
14.00	4.62	**144,146**	**236.42**	**5.21**
15.00	3.99	141,639	236.38	4.66
16.00	3.72	139,495	236.34	4.24
17.00	3.49	137,827	236.31	3.91
18.00	3.27	136,394	236.28	3.66
19.00	3.05	135,041	236.26	3.42
20.00	2.82	133,706	236.23	3.20
21.00	2.58	132,290	236.21	2.98
22.00	2.33	130,794	236.18	2.76
23.00	2.09	129,178	236.15	2.56
24.00	1.84	127,379	236.11	2.36
25.00	0.32	122,467	236.02	2.10
26.00	0.07	115,583	235.89	2.05
27.00	0.02	108,454	235.75	1.99
28.00	0.00	101,441	235.61	1.93
29.00	0.00	94,628	235.47	1.86
30.00	0.00	88,035	235.34	1.80
31.00	0.00	81,672	235.20	1.74
32.00	0.00	75,544	235.07	1.67
33.00	0.00	69,656	234.95	1.60
34.00	0.00	64,010	234.82	1.53
35.00	0.00	58,612	234.70	1.46
36.00	0.00	53,465	234.59	1.39

The table above shows the 100-year storm event. This shows the process of the water balancing between the basins as they come together. Flows from the projects runoff are the only contributing flow to basin A & B. Based on the table we can see both basins contain all of the projects runoff regardless of the size storm event.

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Bio Retention 1:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 1: Road Bio

Inflow Area = 0.400 ac, 94.96% Impervious, Inflow Depth = 1.30" for 2 YEAR event
Inflow = 0.29 cfs @ 9.99 hrs, Volume= 0.043 af
Outflow = 0.06 cfs @ 10.95 hrs, Volume= 0.043 af, Atten= 81%, Lag= 57.7 min
Primary = 0.06 cfs @ 10.95 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 224.95' @ 10.95 hrs Surf.Area= 1,500 sf Storage= 569 cf

Plug-Flow detention time= 128.8 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 128.1 min (897.5 - 769.4)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	226.00'	1,125 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,325 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	1,500	0	0
225.00	1,500	1,500	1,500
226.00	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	1,500	0	0
226.75	1,500	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	224.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	226.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 10.95 hrs HW=224.95' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 4.53 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 1: Road Bio

Inflow Area = 0.400 ac, 94.96% Impervious, Inflow Depth = 2.08" for 5 YEAR event
Inflow = 0.46 cfs @ 9.98 hrs, Volume= 0.069 af
Outflow = 0.07 cfs @ 11.14 hrs, Volume= 0.069 af, Atten= 84%, Lag= 69.5 min
Primary = 0.07 cfs @ 11.14 hrs, Volume= 0.069 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 225.66' @ 11.14 hrs Surf.Area= 1,500 sf Storage= 993 cf

Plug-Flow detention time= 163.4 min calculated for 0.069 af (100% of inflow)
Center-of-Mass det. time= 162.8 min (914.0 - 751.2)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	226.00'	1,125 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,325 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	1,500	0	0
225.00	1,500	1,500	1,500
226.00	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	1,500	0	0
226.75	1,500	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	224.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	226.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 11.14 hrs HW=225.66' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 6.08 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 1: Road Bio

Inflow Area = 0.400 ac, 94.96% Impervious, Inflow Depth = 2.60" for 10 YEAR event
Inflow = 0.58 cfs @ 9.98 hrs, Volume= 0.087 af
Outflow = 0.08 cfs @ 11.34 hrs, Volume= 0.086 af, Atten= 86%, Lag= 81.4 min
Primary = 0.08 cfs @ 11.34 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 226.06' @ 11.34 hrs Surf.Area= 3,000 sf Storage= 1,297 cf

Plug-Flow detention time= 186.6 min calculated for 0.086 af (100% of inflow)
Center-of-Mass det. time= 186.0 min (929.2 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	226.00'	1,125 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,325 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	1,500	0	0
225.00	1,500	1,500	1,500
226.00	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	1,500	0	0
226.75	1,500	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	224.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	226.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 11.34 hrs HW=226.06' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.81 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 1: Road Bio

Inflow Area = 0.400 ac, 94.96% Impervious, Inflow Depth = 3.24" for 25 YEAR event
Inflow = 0.72 cfs @ 9.98 hrs, Volume= 0.108 af
Outflow = 0.17 cfs @ 10.71 hrs, Volume= 0.108 af, Atten= 77%, Lag= 43.7 min
Primary = 0.17 cfs @ 10.71 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 226.27' @ 10.71 hrs Surf.Area= 3,000 sf Storage= 1,602 cf

Plug-Flow detention time= 206.8 min calculated for 0.108 af (100% of inflow)
Center-of-Mass det. time= 206.3 min (941.9 - 735.7)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	226.00'	1,125 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,325 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	1,500	0	0
225.00	1,500	1,500	1,500
226.00	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	1,500	0	0
226.75	1,500	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	224.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	226.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.15 cfs @ 10.71 hrs HW=226.27' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.15 fps)
- **3=Orifice/Grate** (Weir Controls 0.06 cfs @ 0.44 fps)

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Summary for Pond BIO 1: Road Bio

Inflow Area = 0.400 ac, 94.96% Impervious, Inflow Depth = 4.18" for 100 YEAR event
Inflow = 0.91 cfs @ 9.98 hrs, Volume= 0.139 af
Outflow = 0.54 cfs @ 10.22 hrs, Volume= 0.139 af, Atten= 42%, Lag= 14.5 min
Primary = 0.54 cfs @ 10.22 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 226.32' @ 10.22 hrs Surf.Area= 3,000 sf Storage= 1,674 cf

Plug-Flow detention time= 189.9 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 189.8 min (917.5 - 727.7)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	226.00'	1,125 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,325 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	1,500	0	0
225.00	1,500	1,500	1,500
226.00	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	1,500	0	0
226.75	1,500	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	224.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	226.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.51 cfs @ 10.22 hrs HW=226.31' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.22 fps)
- **3=Orifice/Grate** (Weir Controls 0.42 cfs @ 0.83 fps)

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Bio Retention 2:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 2: Road Bio

Inflow Area = 0.565 ac, 91.69% Impervious, Inflow Depth > 1.23" for 2 YEAR event
Inflow = 0.14 cfs @ 10.00 hrs, Volume= 0.058 af
Outflow = 0.06 cfs @ 13.57 hrs, Volume= 0.058 af, Atten= 59%, Lag= 214.2 min
Primary = 0.06 cfs @ 13.57 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 221.86' @ 13.57 hrs Surf.Area= 1,125 sf Storage= 445 cf

Plug-Flow detention time= 108.1 min calculated for 0.058 af (100% of inflow)
Center-of-Mass det. time= 106.3 min (979.0 - 872.7)

Volume	Invert	Avail.Storage	Storage Description
#1	220.87'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	222.87'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.87	1,125	0	0
221.87	1,125	1,125	1,125
222.87	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
222.87	1,125	0	0
223.37	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	223.37'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	220.87'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	223.18'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 13.57 hrs HW=221.86' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 4.63 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 2: Road Bio

Inflow Area = 0.565 ac, 91.69% Impervious, Inflow Depth > 2.00" for 5 YEAR event
Inflow = 0.22 cfs @ 10.00 hrs, Volume= 0.094 af
Outflow = 0.08 cfs @ 14.38 hrs, Volume= 0.094 af, Atten= 65%, Lag= 263.0 min
Primary = 0.08 cfs @ 14.38 hrs, Volume= 0.094 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 222.63' @ 14.38 hrs Surf.Area= 1,125 sf Storage= 791 cf

Plug-Flow detention time= 141.3 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 140.0 min (1,017.9 - 877.9)

Volume	Invert	Avail.Storage	Storage Description
#1	220.87'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	222.87'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.87	1,125	0	0
221.87	1,125	1,125	1,125
222.87	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
222.87	1,125	0	0
223.37	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	223.37'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	220.87'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	223.18'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 14.38 hrs HW=222.63' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.27 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Willow Creek June 1, 2017 Type I 24-hr SM-10 Rainfall= 3.15"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 2: Road Bio

Inflow Area = 0.565 ac, 91.69% Impervious, Inflow Depth > 2.51" for 10 YEAR event
Inflow = 0.28 cfs @ 9.99 hrs, Volume= 0.118 af
Outflow = 0.09 cfs @ 15.58 hrs, Volume= 0.118 af, Atten= 69%, Lag= 334.9 min
Primary = 0.09 cfs @ 15.58 hrs, Volume= 0.118 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 223.01' @ 15.58 hrs Surf.Area= 2,250 sf Storage= 1,061 cf

Plug-Flow detention time= 165.5 min calculated for 0.118 af (100% of inflow)
Center-of-Mass det. time= 164.3 min (1,050.1 - 885.8)

Volume	Invert	Avail.Storage	Storage Description
#1	220.87'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	222.87'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.87	1,125	0	0
221.87	1,125	1,125	1,125
222.87	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
222.87	1,125	0	0
223.37	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	223.37'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	220.87'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	223.18'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 15.58 hrs HW=223.01' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 6.94 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 2: Road Bio

Inflow Area = 0.565 ac, 91.69% Impervious, Inflow Depth > 3.15" for 25 YEAR event
Inflow = 0.34 cfs @ 9.99 hrs, Volume= 0.148 af
Outflow = 0.12 cfs @ 12.26 hrs, Volume= 0.148 af, Atten= 65%, Lag= 135.9 min
Primary = 0.12 cfs @ 12.26 hrs, Volume= 0.148 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 223.19' @ 12.26 hrs Surf.Area= 2,250 sf Storage= 1,259 cf

Plug-Flow detention time= 183.2 min calculated for 0.148 af (100% of inflow)
Center-of-Mass det. time= 182.0 min (1,073.8 - 891.8)

Volume	Invert	Avail.Storage	Storage Description
#1	220.87'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	222.87'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.87	1,125	0	0
221.87	1,125	1,125	1,125
222.87	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
222.87	1,125	0	0
223.37	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	223.37'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	220.87'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	223.18'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 12.26 hrs HW=223.19' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.23 fps)
- **3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.32 fps)

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Willow Creek June 1, 2017 Type I 24-hr SM-100 Rainfall= 4.76"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 2: Road Bio

Inflow Area = 0.565 ac, 91.69% Impervious, Inflow Depth > 4.08" for 100 YEAR event
Inflow = 0.74 cfs @ 10.22 hrs, Volume= 0.192 af
Outflow = 0.54 cfs @ 10.41 hrs, Volume= 0.192 af, Atten= 26%, Lag= 11.6 min
Primary = 0.54 cfs @ 10.41 hrs, Volume= 0.192 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 223.25' @ 10.41 hrs Surf.Area= 2,250 sf Storage= 1,324 cf

Plug-Flow detention time= 160.5 min calculated for 0.192 af (100% of inflow)
Center-of-Mass det. time= 159.4 min (1,030.0 - 870.6)

Volume	Invert	Avail.Storage	Storage Description
#1	220.87'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	222.87'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.87	1,125	0	0
221.87	1,125	1,125	1,125
222.87	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
222.87	1,125	0	0
223.37	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	223.37'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	220.87'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	223.18'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.53 cfs @ 10.41 hrs HW=223.25' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.32 fps)
- **3=Orifice/Grate** (Weir Controls 0.44 cfs @ 0.84 fps)

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Bio Retention 3:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
Prepared by Bethel Engineering Printed 06/1/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 3: Road Bio

Inflow Area = 0.729 ac, 89.90% Impervious, Inflow Depth > 1.19" for 2 YEAR event
Inflow = 0.13 cfs @ 10.00 hrs, Volume= 0.073 af
Outflow = 0.06 cfs @ 16.16 hrs, Volume= 0.072 af, Atten= 54%, Lag= 369.7 min
Primary = 0.06 cfs @ 16.16 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 218.79' @ 16.16 hrs Surf.Area= 1,125 sf Storage= 492 cf

Plug-Flow detention time= 117.9 min calculated for 0.072 af (100% of inflow)
Center-of-Mass det. time= 115.5 min (1,058.2 - 942.7)

Volume	Invert	Avail.Storage	Storage Description
#1	217.70'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	219.70'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
217.70	1,125	0	0
218.70	1,125	1,125	1,125
219.70	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
219.70	1,125	0	0
220.20	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	220.20'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	217.70'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	220.15'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 16.16 hrs HW=218.79' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 4.89 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)

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Summary for Pond BIO 3: Road Bio

Inflow Area = 0.729 ac, 89.90% Impervious, Inflow Depth > 1.95" for 5 YEAR event
Inflow = 0.21 cfs @ 9.99 hrs, Volume= 0.119 af
Outflow = 0.08 cfs @ 17.94 hrs, Volume= 0.118 af, Atten= 62%, Lag= 476.8 min
Primary = 0.08 cfs @ 17.94 hrs, Volume= 0.118 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 219.67' @ 17.94 hrs Surf.Area= 1,125 sf Storage= 886 cf

Plug-Flow detention time= 154.7 min calculated for 0.118 af (100% of inflow)
Center-of-Mass det. time= 152.9 min (1,120.5 - 967.6)

Volume	Invert	Avail.Storage	Storage Description
#1	217.70'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	219.70'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
217.70	1,125	0	0
218.70	1,125	1,125	1,125
219.70	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
219.70	1,125	0	0
220.20	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	220.20'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	217.70'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	220.15'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 17.94 hrs HW=219.67' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.65 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 3: Road Bio

Inflow Area = 0.729 ac, 89.90% Impervious, Inflow Depth > 2.46" for 10 YEAR event
Inflow = 0.27 cfs @ 9.99 hrs, Volume= 0.149 af
Outflow = 0.09 cfs @ 20.64 hrs, Volume= 0.149 af, Atten= 67%, Lag= 639.2 min
Primary = 0.09 cfs @ 20.64 hrs, Volume= 0.149 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 220.01' @ 20.64 hrs Surf.Area= 2,250 sf Storage= 1,244 cf

Plug-Flow detention time= 188.6 min calculated for 0.149 af (100% of inflow)
Center-of-Mass det. time= 186.8 min (1,177.0 - 990.2)

Volume	Invert	Avail.Storage	Storage Description
#1	217.70'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	219.70'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
217.70	1,125	0	0
218.70	1,125	1,125	1,125
219.70	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
219.70	1,125	0	0
220.20	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	220.20'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	217.70'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	220.15'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 20.64 hrs HW=220.01' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.21 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 3: Road Bio

Inflow Area = 0.729 ac, 89.90% Impervious, Inflow Depth > 3.10" for 25 YEAR event
Inflow = 0.33 cfs @ 9.99 hrs, Volume= 0.188 af
Outflow = 0.13 cfs @ 13.92 hrs, Volume= 0.188 af, Atten= 61%, Lag= 235.7 min
Primary = 0.13 cfs @ 13.92 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 220.16' @ 13.92 hrs Surf.Area= 2,250 sf Storage= 1,417 cf

Plug-Flow detention time= 201.5 min calculated for 0.188 af (100% of inflow)
Center-of-Mass det. time= 199.1 min (1,205.3 - 1,006.2)

Volume	Invert	Avail.Storage	Storage Description
#1	217.70'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	219.70'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
217.70	1,125	0	0
218.70	1,125	1,125	1,125
219.70	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
219.70	1,125	0	0
220.20	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	220.20'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	217.70'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	220.15'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 13.92 hrs HW=220.16' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.45 fps)
- **3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.31 fps)

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Willow Creek June 1, 2017 Type I 24-hr SM-100 Rainfall= 4.76"
Prepared by Bethel Engineering Printed 06/1/17
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Summary for Pond BIO 3: Road Bio

Inflow Area = 0.729 ac, 89.90% Impervious, Inflow Depth > 4.03" for 100 YEAR event
Inflow = 0.68 cfs @ 10.40 hrs, Volume= 0.245 af
Outflow = 0.53 cfs @ 10.61 hrs, Volume= 0.244 af, Atten= 23%, Lag= 12.4 min
Primary = 0.53 cfs @ 10.61 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 220.21' @ 10.61 hrs Surf.Area= 2,250 sf Storage= 1,463 cf

Plug-Flow detention time= 172.2 min calculated for 0.244 af (100% of inflow)
Center-of-Mass det. time= 168.5 min (1,137.4 - 968.9)

Volume	Invert	Avail.Storage	Storage Description
#1	217.70'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	219.70'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
217.70	1,125	0	0
218.70	1,125	1,125	1,125
219.70	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
219.70	1,125	0	0
220.20	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	220.20'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	217.70'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	220.15'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 10.61 hrs HW=220.21' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.27 fps)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.53 fps)
- **3=Orifice/Grate** (Weir Controls 0.39 cfs @ 0.80 fps)

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Bio Retention 4:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
Prepared by Bethel Engineering Printed 5/10/17
HydroCAD®10.00-12 s/n 03022 ©2014 HydroCAD Software Solutions LLC

Summary for Pond BIO 4: Road Bio

Inflow Area = 0.894 ac, 88.77% Impervious, Inflow Depth > 1.17" for 2 YEAR event
Inflow = 0.13 cfs @ 10.00 hrs, Volume= 0.087 af
Outflow = 0.06 cfs @ 18.90 hrs, Volume= 0.087 af, Atten= 51%, Lag= 534.2 min
Primary = 0.06 cfs @ 18.90 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 215.71' @ 18.90 hrs Surf.Area= 1,125 sf Storage= 544 cf

Plug-Flow detention time= 125.5 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 122.7 min (1,137.3 - 1,014.6)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	216.50'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.50	1,125	0	0
215.50	1,125	1,125	1,125
216.50	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.50	1,125	0	0
217.00	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	214.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	216.75'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 18.90 hrs HW=215.71' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 5.15 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 4: Road Bio

Inflow Area = 0.894 ac, 88.77% Impervious, Inflow Depth > 1.92" for 5 YEAR event
Inflow = 0.21 cfs @ 9.99 hrs, Volume= 0.143 af
Outflow = 0.08 cfs @ 21.79 hrs, Volume= 0.143 af, Atten= 60%, Lag= 708.0 min
Primary = 0.08 cfs @ 21.79 hrs, Volume= 0.143 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 216.59' @ 21.79 hrs Surf.Area= 2,250 sf Storage= 1,004 cf

Plug-Flow detention time= 166.3 min calculated for 0.143 af (100% of inflow)
Center-of-Mass det. time= 164.1 min (1,225.2 - 1,061.1)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	216.50'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.50	1,125	0	0
215.50	1,125	1,125	1,125
216.50	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.50	1,125	0	0
217.00	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	214.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	216.75'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 21.79 hrs HW=216.59' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.86 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond BIO 4: Road Bio

Inflow Area = 0.894 ac, 88.77% Impervious, Inflow Depth > 2.43" for 10 YEAR event
Inflow = 0.27 cfs @ 9.99 hrs, Volume= 0.181 af
Outflow = 0.10 cfs @ 18.14 hrs, Volume= 0.179 af, Atten= 62%, Lag= 489.0 min
Primary = 0.10 cfs @ 18.14 hrs, Volume= 0.179 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 216.75' @ 18.14 hrs Surf.Area= 2,250 sf Storage= 1,185 cf

Plug-Flow detention time= 186.0 min calculated for 0.179 af (99% of inflow)
Center-of-Mass det. time= 179.6 min (1,285.0 - 1,105.4)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	216.50'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.50	1,125	0	0
215.50	1,125	1,125	1,125
216.50	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.50	1,125	0	0
217.00	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	214.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	216.75'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 18.14 hrs HW=216.75' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.13 fps)
- **3=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.18 fps)

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Summary for Pond BIO 4: Road Bio

Inflow Area = 0.894 ac, 88.77% Impervious, Inflow Depth > 3.06" for 25 YEAR event
Inflow = 0.33 cfs @ 9.99 hrs, Volume= 0.228 af
Outflow = 0.15 cfs @ 14.01 hrs, Volume= 0.221 af, Atten= 55%, Lag= 241.4 min
Primary = 0.15 cfs @ 14.01 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 216.77' @ 14.01 hrs Surf.Area= 2,250 sf Storage= 1,198 cf

Plug-Flow detention time= 171.9 min calculated for 0.221 af (97% of inflow)
Center-of-Mass det. time= 145.9 min (1,272.2 - 1,126.3)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	216.50'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.50	1,125	0	0
215.50	1,125	1,125	1,125
216.50	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.50	1,125	0	0
217.00	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	214.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	216.75'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 14.01 hrs HW=216.77' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.15 fps)
- **3=Orifice/Grate** (Weir Controls 0.05 cfs @ 0.40 fps)

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Summary for Pond BIO 4: Road Bio

Inflow Area = 0.894 ac, 88.77% Impervious, Inflow Depth > 3.98" for 100 YEAR event
Inflow = 0.62 cfs @ 10.61 hrs, Volume= 0.297 af
Outflow = 0.51 cfs @ 10.72 hrs, Volume= 0.286 af, Atten= 18%, Lag= 6.4 min
Primary = 0.51 cfs @ 10.72 hrs, Volume= 0.286 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 216.81' @ 10.72 hrs Surf.Area= 2,250 sf Storage= 1,252 cf

Plug-Flow detention time= 140.9 min calculated for 0.286 af (96% of inflow)
Center-of-Mass det. time= 104.2 min (1,172.1 - 1,067.9)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,250 cf Overall x 40.0% Voids
#2	216.50'	563 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,463 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.50	1,125	0	0
215.50	1,125	1,125	1,125
216.50	1,125	1,125	2,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.50	1,125	0	0
217.00	1,125	563	563

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	214.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	216.75'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.49 cfs @ 10.72 hrs HW=216.81' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.22 fps)
- **3=Orifice/Grate** (Weir Controls 0.40 cfs @ 0.81 fps)

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Bio Retention 5:

Willow Creek June 1, 2017 Type I 24-hr SM-2 Rainfall= 1.81"
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Summary for Pond BIO 5: Road Bio

Inflow Area = 1.068 ac, 88.92% Impervious, Inflow Depth > 1.17" for 2 YEAR event
Inflow = 0.15 cfs @ 9.99 hrs, Volume= 0.104 af
Outflow = 0.07 cfs @ 22.09 hrs, Volume= 0.104 af, Atten= 56%, Lag= 725.7 min
Primary = 0.07 cfs @ 22.09 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 210.58' @ 22.09 hrs Surf.Area= 1,500 sf Storage= 769 cf

Plug-Flow detention time= 170.5 min calculated for 0.104 af (99% of inflow)
Center-of-Mass det. time= 166.5 min (1,243.4 - 1,076.9)

Volume	Invert	Avail.Storage	Storage Description
#1	209.30'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,950 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.30	1,500	0	0
210.30	1,500	1,500	1,500
211.30	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 22.09 hrs HW=210.58' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.32 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Willow Creek June 1, 2017 Type I 24-hr SM-5 Rainfall= 2.62"
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Summary for Pond BIO 5: Road Bio

Inflow Area = 1.068 ac, 88.92% Impervious, Inflow Depth > 1.93" for 5 YEAR event
Inflow = 0.24 cfs @ 9.99 hrs, Volume= 0.172 af
Outflow = 0.08 cfs @ 24.35 hrs, Volume= 0.166 af, Atten= 65%, Lag= 861.4 min
Primary = 0.08 cfs @ 24.35 hrs, Volume= 0.166 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.41' @ 24.35 hrs Surf.Area= 3,000 sf Storage= 1,365 cf

Plug-Flow detention time= 220.6 min calculated for 0.166 af (96% of inflow)
Center-of-Mass det. time= 192.8 min (1,340.0 - 1,147.2)

Volume	Invert	Avail.Storage	Storage Description
#1	209.30'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,950 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.30	1,500	0	0
210.30	1,500	1,500	1,500
211.30	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 24.35 hrs HW=211.41' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.89 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

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Willow Creek June 1, 2017 Type I 24-hr SM-10 Rainfall= 3.15"
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Summary for Pond BIO 5: Road Bio

Inflow Area = 1.068 ac, 88.92% Impervious, Inflow Depth > 2.42" for 10 YEAR event
Inflow = 0.30 cfs @ 9.99 hrs, Volume= 0.216 af
Outflow = 0.10 cfs @ 23.01 hrs, Volume= 0.193 af, Atten= 65%, Lag= 781.1 min
Primary = 0.10 cfs @ 23.01 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.70' @ 23.01 hrs Surf.Area= 3,000 sf Storage= 1,806 cf

Plug-Flow detention time= 256.4 min calculated for 0.193 af (89% of inflow)
Center-of-Mass det. time= 166.0 min (1,361.5 - 1,195.5)

Volume	Invert	Avail.Storage	Storage Description
#1	209.30'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,950 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.30	1,500	0	0
210.30	1,500	1,500	1,500
211.30	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 23.01 hrs HW=211.70' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.37 fps)
- **3=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.21 fps)

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Summary for Pond BIO 5: Road Bio

Inflow Area = 1.068 ac, 88.92% Impervious, Inflow Depth > 3.00" for 25 YEAR event
Inflow = 0.37 cfs @ 9.99 hrs, Volume= 0.267 af
Outflow = 0.16 cfs @ 15.28 hrs, Volume= 0.234 af, Atten= 56%, Lag= 317.6 min
Primary = 0.16 cfs @ 15.28 hrs, Volume= 0.234 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.72' @ 15.28 hrs Surf.Area= 3,000 sf Storage= 1,833 cf

Plug-Flow detention time= 237.6 min calculated for 0.234 af (88% of inflow)
Center-of-Mass det. time= 126.1 min (1,308.1 - 1,182.1)

Volume	Invert	Avail.Storage	Storage Description
#1	209.30'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,950 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.30	1,500	0	0
210.30	1,500	1,500	1,500
211.30	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 15.28 hrs HW=211.72' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.40 fps)
- **3=Orifice/Grate** (Weir Controls 0.07 cfs @ 0.49 fps)

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Willow Creek June 1, 2017 Type I 24-hr SM-100 Rainfall= 4.76"
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Summary for Pond BIO 5: Road Bio

Inflow Area = 1.068 ac, 88.92% Impervious, Inflow Depth > 3.87" for 100 YEAR event
Inflow = 0.59 cfs @ 10.71 hrs, Volume= 0.345 af
Outflow = 0.42 cfs @ 11.10 hrs, Volume= 0.309 af, Atten= 29%, Lag= 23.4 min
Primary = 0.42 cfs @ 11.10 hrs, Volume= 0.309 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.77' @ 11.10 hrs Surf.Area= 3,000 sf Storage= 1,898 cf

Plug-Flow detention time= 192.5 min calculated for 0.309 af (90% of inflow)
Center-of-Mass det. time= 88.9 min (1,186.1 - 1,097.2)

Volume	Invert	Avail.Storage	Storage Description
#1	209.30'	1,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,000 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		1,950 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.30	1,500	0	0
210.30	1,500	1,500	1,500
211.30	1,500	1,500	3,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.42 cfs @ 11.10 hrs HW=211.77' (Free Discharge)
└1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
├2=**Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.46 fps)
└3=**Orifice/Grate** (Weir Controls 0.33 cfs @ 0.83 fps)

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APPENDIX F

25-Year storm event Calculations for
Santa Barbara County Flood Control District Criteria

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Site Areas: 38.95 acres (1,696,512 square feet)

Flood Control 25-Year storm event Equations:

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre}$$

Flood Control 25-Year storm event calculations:

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre}$$

$$Runoff_{25\ year}\ (cfs) = \frac{0.07\ cfs}{acre} \times 38.95\ acres$$

$$\boldsymbol{Runoff_{25\ year}\ (cfs) = 2.73\ cfs}$$

25-Year Storm Event from HydroCAD:

Event	Pre-development Total (cfs)	Post-development Total (cfs)	Pre>Post	Difference (cfs)
25- Yr (HydroCAD)	13.86	1.85	YES	-12.02

25-Year Storm Event HydroCAD vs Flood Control:

Event	Post-development (HydroCAD) Total (cfs)	Post-development (0.07 cfs/acre) Total (cfs)	Is Post Runoff Hydro CAD less than Post Runoff Flood Control	Difference (cfs)
25- Yr	1.84	2.73	YES	-0.89

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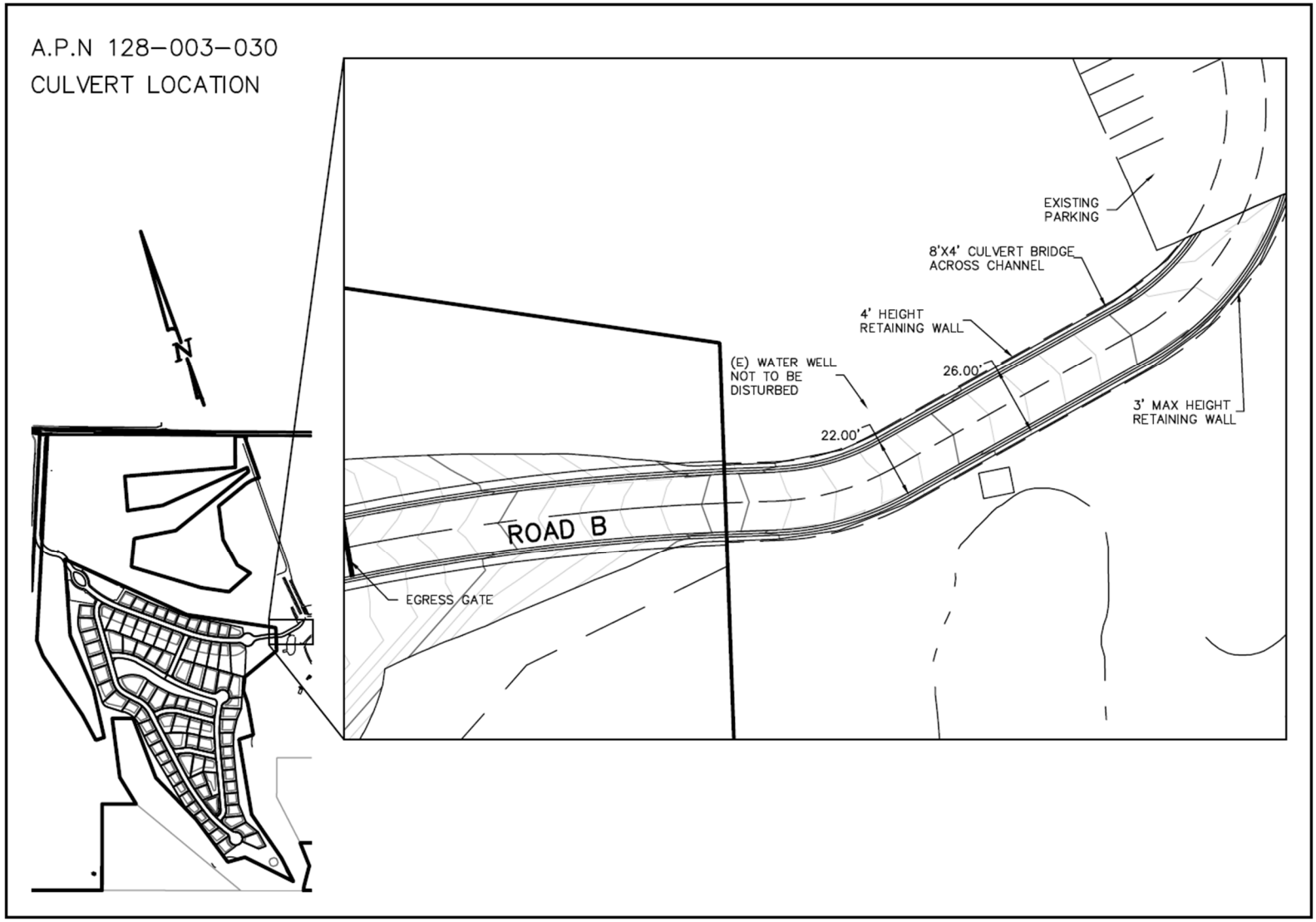
JOB **0322.3 Willow Creek**
SHEET NO **63 OF 63**
CALCULATED BY **D.V.** DATE **06/1/17**
CHECKED BY **B.W.D.** DATE **06/1/17**

APPENDIX G



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Stormwater Control Plan

For

Hidden Canyon

Around Rancho Maria Golf Club, 1950 Highway 1

(Santa Barbara County, CA)

A.P.N. 113-250-016

June 1, 2017

Prepared for:
Anthony Wells
The HWM Group, Ltd. LLC
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Prepared by:
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Table of Contents

I. Project Data 3
II. Setting 3
II.A. Project Location and Description 3
II.B. Existing Site Features and Conditions 3
II.C. Opportunities and Constraints for the Stormwater Control 3
III. Low Impact Development Design Strategies 4
III.A. Optimization of Site Layout 4
III.A.1. Limitation of Development Envelope 4
III.A.2. Preservation of Natural Drainage Features 4
III.A.3. Setbacks from Creeks, Wetlands and Riparian Habitats 4
III.A.4. Minimization of Imperviousness 4
III.A.5. Use of Drainage as a Design Element 4
III.B. Use of Permeable Pavement 4
III.C. Dispersal of Runoff to Pervious areas 4
III.D. Stormwater Control Measures 5
IV. Documentation of Drainage Design 5
IV.A. Description of each Drainage Management Areas 5
IV.A.2.Drainage Management Area Descriptions 5
IV.B. Tabulation and Size Calculation 5
V. Source Control Measures 5
V.A. Site Activities and Potential Sources of Pollutants 5
V.B. Source Control Table 6
V.C. Features, Materials and Methods of Construction of Source Control BMP's 7
VI. Stormwater Facility Maintenance 8
VI.A. Ownership and Responsibility for Maintenance in Perpetuity 8
VI.B. Summary of Maintenance Requirements for Each Stormwater Facility 8
VII. Construction Checklist 8
VIII. Certifications 11
Exhibit / Report Overview 11
Pre vs. Post 12
Appendix A 18
Appendix B 20
Appendix C 22
Appendix D 26

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I. Project Data

Project Name:	Hidden Canyon, Tract 14,822
Application Submittal Date:	June 1, 2017
Project Location:	Around Rancho Maria Golf Club, 1950 Highway 1 APN 113-250-016
Total Project site area:	1,904,539 S.F. /43.72 Acres
Total New Impervious Surface Area:	715,587 S.F. / 16.43 Acres
Total Pre-Project Impervious Area:	0 S.F. / 0.0 acres
Total Post-Project Impervious Area:	715,587 S.F. / 16.43 Acres
Total Replaced Impervious Area:	0 S.F. / 0.0 acres
Watershed Management Zone:	Zone 4
Design Storm Frequency and Depth:	95th Percentile Rainfall / depth of 1.5 inches

II. Setting

II.A. Project Location and Description

The proposed residential development is located around the Rancho Maria Golf Club, 1950 Highway 1, in the Orcutt area of the Santa Barbara County, California. The property covers 106.73 acres. The property is currently undeveloped and consists of some trees and plants and gently slops down south to north. A couple of years ago the site was used for farming and currently there are abandoned row crops on site. Only 43.72 acres will be disturbed. The remaining 63.01 acres will be left as is. For the purpose of the projects calculations only the 43.72 acres that will be disturbed will be considered.

II.B. Existing Site Features and Conditions

The topography of this site has steep and flat areas. The site was previously used for row crops and currently is abandoned. The highest point is located at the south side of the site. The property slopes towards the north side or northwest side of the site. The site is pervious with no buildings or hardscape. There is a gully that runs south to north on the west side of the site. There is also a stream running south to north on the southwest side of the site. Storm water currently drains north or northwest via sheet flow across the surface and percolates. The USDA, Natural Resources Conservation Service, Web Soil Survey, determines that the site consists of Betteravia loamy sand, Botella loam, Chamise shaly loam, Corralitos sand, Elder sandy loam, Gullied land, rough broken land, and Tierra sandy loam, having a significant amount of clay component (see Exhibit 1 of Appendix C). The definitions in the Stormwater Technical Guide helped determine the site's soil would fit into the HSG A/B category (sandy soil). These categories were used in the SCM Sizing Calculator (see Exhibit 1 of Appendix B).

II.C. Opportunities and Constraints for the Stormwater Control

The opportunities selected for stormwater control include: diverting drainage to landscaped areas utilizing native vegetation to promote infiltration. In addition, the grading design will direct / transport the storm water to the site's one direct infiltration facility. The basin will hold the required volume of 55,894 ft^3. The basin has been strategically located in the lowest areas to provide for adequate slopes to help convey the stormwater. This minimizes the possibility of ponding on the hardscapes. The landscaped areas have been placed throughout the project to absorb stormwater and minimize the runoff that would otherwise flow into the main infiltration facilities during a 1.5 inch storm event (95 percentile storm). This site's design, layout, and grading promote on-site storm water containment / infiltration, within landscape planters and a direct infiltration facility.

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III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of Development Envelope

Due to the nature of this site our design was limited based on the steep and long continuous slopes. Knowing this we lowered the site to level out with the existing golf course. A good amount of useable space and pervious surfaces was also produced.

III.A.2. Preservation of Natural Drainage Features

The sites current storm water runoff primarily flows up North or Northwest of the site to two 36 inch CMP under Highway 1. We designed storm water features that withheld the maximum amount of runoff for our site for the 1.5 inch storm event onto the basin. Any offsite flow will flow past our features and into the gully or stream/canal west of the site.

III.A.3. Setbacks from Creeks, Wetlands and Riparian Habitats

Due to the location of this site there is a 200 feet agriculture setback and a 100 foot agriculture setback on the east side of the property. Currently the property on the east side of the site is being used for agricultural purposes. The 200 foot setback, for the site, runs along the east side property up to where the land is farmed. After that there is only a 100 foot setback. There are also two easements. There is 5 foot easement for ingress, egress, water pipes and incidental purposes on the North of the site. The second easement is for ingress, egress, water pipes and incidental purposes in middle of the site. Both easements are located near the first three lots near the entrance of the road on the left.

III.A.4. Minimization of Imperviousness

The site design for this residential area is based on the minimization of impervious surfaces. Additional goals are to provide adequate vehicular and pedestrian accessibility to the residential structures on the site as-well-as creating a design that minimizes the need for ongoing maintenance on the basin. With this design the site has the imperviousness minimized while still capturing the required 1.5 inch storm and allowing that runoff to percolate on site.

III.A.5. Use of Drainage as a Design Element

The site design and layout directs storm water towards the basin. In Exhibit 1 (see page 1 of Appendix A), the basin was placed to receive water from storm drains and designed slopes. This allows the maximum possible amount of storm water to enter the basin during small storms and large storms.

III.B. Use of Permeable Pavement

The design of this project did not require additional space. No permeable pavers/pavements were designed for the project. The basin designed is large enough to withhold the storm water flow.

III.C. Dispersal of Runoff to Pervious areas

The sites stormwater runoff is to achieve the site stormwater features through the use of underground drains lines, grading and sheet flow achieved due the sites grading. The grading of the site is the largest contributor to the runoff being dispersed to the pervious areas of the site and being allowed to infiltrate the maximum amount of runoff for the pervious area available.

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III.D. Stormwater Control Measures

The stormwater control measures (SCMs) being proposed are designed to be direct infiltration for the storm water that fall on these areas. The Drainage Management Areas (DMAs) drain to these self-treating basin (see page 1 of Appendix A).

IV. Documentation of Drainage Design

IV.A. Description of each Drainage Management Areas

Table 1: DMA Exhibit 1 reference

DMA	AREA (SF)	Drains to
DMA 1	495,127	SCM 1
DMA 2	330,783	SCM 1
DMA 3	627,838	SCM 1
DMA 4	384,804	SCM 1

Table 2: SCM Exhibit 1 reference

SCM	TYPE	AREA (SF)
SCM 1	Direct Infiltration	65,987

IV.A.2.Drainage Management Area Descriptions

DMA 1, totaling 495,127 square feet, drains landscape. DMA 1 sheet flows into SCM 1.

DMA 2, totaling 330,783 square feet, drains the road and decomposed granite sidewalk of the site. DMA 2 sheet flows into SCM 1.

DMA 3, totaling 627,838 square feet, drains the landscape of each property. DMA 3 sheet flows into SCM 1.

DMA 4, totaling 384,804 square feet, drains the roof tops. DMA 4 drains to the roads and onto SCM 1.

SCM 1, totaling 65,987 square feet, captures runoff from impervious areas and landscape areas. SCM 1 captures DMA 2 through DMA 4. SCM 1 is a direct infiltration basin.

IV.B. Tabulation and Size Calculation

For stormwater control measure calculation and tabulations refer to Central Coast Region Stormwater Control Measure Sizing Calculator in “Appendix B”.

V. Source Control Measures

V.A. Site Activities and Potential Sources of Pollutants

The APN 113-250-016 storm drainage patterns (as proposed) direct storm water to direct infiltration facilities storm events larger than the designed 1.5 inch event will also achieve the infiltration facilities, but will be able to leave the site through under drains, which will allow stormwater to transfer from the basin to the storm drain system. Any potential sources of pollutants that could be transported to the direct infiltration facilities could also be transported to the storm drain system. Pollutants could be from the illegal dumping of chemicals into basins as-well-as pollutants left by vehicles that visit the site. In

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addition, the materials used to construct and maintain the site could also be possible sources of pollution. Overflow from landscape areas can carry pesticides. Storm water from roofs can carry metals. Drains made of copper or other materials with an unprotected surface may cast-off metal particles to the main basins. Parking areas and hardscapes may contribute litter that can be carried into the basins. All areas should be kept clean to minimize the possibility of litter making its way into the storm water system.

V.B. Source Control Table

Potential source of runoff pollutants	**Permanent source control BMPs**	**Operational Source Control BMPs**
On-site storm drain inlet (unauthorized non-stormwater discharges and accidental spills or leaks)	Mark all inlets with the words "No Dumping! Flows to Bay" or similar	Maintain and periodically replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees or operators See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbook at www.casqa.org/resources/bmp-handbooks
Interior Floor Drains	State that interior floor drains will be plumbed to the sanitary sewer.	Inspect and maintain drains to prevent blockages and overflow.
Need for Future Indoor and structural pest control	Note building design features that discourage entry of pests.	Provide Integrated Pest Management information to owner, leases, and operators.
Landscape/ Outdoor Pesticide Use/ building and Ground Maintenance	State that final landscape plans will accomplish all of the following: • Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Specify plants that are tolerant to saturated soil conditions, where landscaped areas are used to retain or detain stormwater. • Consider using pest-resistant plants, especially adjacent to	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbook at www.casqa.org/resources/bmp-handbooks Provide IPM information to new owners, lessees and operators.

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	hardscapes. • To insure successful establishment, select plants appropriate to site soil, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	
Miscellaneous Drain or Wash Water or other Sources • Boiler Drains • Condensate drain lines • Rooftop Equipment • Drainage Sumps • Roofing, gutters and trim	Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. Avoid roofing, gutters, and trim made of copper or other unprotected metal that ay leach into runoff.	
Plazas, sidewalks and parking lots		Sweep plazas, sidewalks and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser to the sanitary sewer not to a storm drain.

V.C. Features, Materials and Methods of Construction of Source Control BMP's

The stormwater features are to be built per the grading, landscape and architectural plans and material and methods of construction are to be determined by the owner/developer and contractors.

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VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

Signed ownership and responsibility for maintenance agreement to be on file at the County of Santa Barbara Project Clean Water, Water Resources Division Public Works Department, 123 East Anapamu Street, Santa Barbara, CA.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

For maintenance requirements, refer to the Stormwater Maintenance Plan in "Appendix D".

VII. Construction Checklist

Layout (to be confirmed prior to beginning excavation)

- ❒ Square footage of the facility meets or exceeds minimum shown in Stormwater Control Plan
- ❒ Site grading and grade breaks are consistent with the boundaries of the tributary Drainage Management Area(s) (DMAs) shown in the Stormwater Control Plan
- ❒ Inlet elevation of the facility is low enough to receive drainage from the entire tributary DMA
- ❒ Locations and elevations of overland flow or piping, including roof leaders, from impervious areas to the facility have been laid out and any conflicts resolved
- ❒ Rim elevation of the facility is laid out to be level all the way around, or elevations are consistent with a detailed cross-section showing location and height of interior dams
- ❒ Locations for vaults, utility boxes, and light standards have been identified so that they will not conflict with the facility
- ❒ Location for signage is identified
- ❒ Facility is protected as needed from construction-phase runoff and sediment

Excavation (to be confirmed prior to backfilling or pipe installation)

- ❒ Excavation conducted with materials and techniques to minimize compaction of soils within the facility area
- ❒ Excavation is to accurate area and depth
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ Vertical moisture barrier, if specified, has been added to protect adjacent pavement or structures.
- ❒ Native soils at bottom of excavation are ripped or loosened to promote infiltration

Overflow or Surface Connection to Storm Drainage
(to be confirmed prior to backfilling with any materials)

- ❒ Overflow is at specified elevation
- ❒ No knockouts or side inlets are in overflow riser
- ❒ Overflow location selected to minimize surface flow velocity (near, but offset from, inlet recommended)
- ❒ Grating excludes mulch and litter (beehive or atrium-style grates with ¼" openings

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recommended)

- ❒ Overflow is connected to storm drain via appropriately sized piping

Underground connection to storm drain/outlet orifice
(to be confirmed prior to backfilling with any materials)

- ❒ Perforated pipe underdrain (PVC SDR 35 or approved equivalent) is installed with holes facing down
- ❒ Perforated pipe is connected to storm drain at specified elevation (typ. bottom of soil elevation)
- ❒ Cleanouts are in accessible locations and connected via sweep bends
- ❒ Monitoring well, if required, is installed.
- ❒ Structures (arches or large diameter pipes) for additional surface storage are installed as shown in plans and specifications and have the specified volume

Drain Rock/Subdrain (to be confirmed prior to installation of soil mix)

- ❒ Rock is installed as specified. Class 2 permeable, Caltrans specification 68-2.02(F)(3) recommended, or 4"-6" depth of pea gravel is installed at the top of the crushed rock layer to prevent migration of fines into gravel layer
- ❒ Rock is smoothed to a level top elevation. Depth and top elevation are as shown in plans
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ No filter fabric is placed between the subdrain and soil mix layers

Soil Mix

- ❒ Soil mix is as specified.
- ❒ Mix installed in lifts not exceeding 12"
- ❒ Mix is not compacted during installation but may be thoroughly wetted to encourage consolidation
- ❒ Mix is smoothed to a level top elevation. Depth of mix (24" min.) and top elevation are as shown in plans, accounting for depth of mulch to follow and required reservoir depth

Irrigation

- ❒ Irrigation system is installed so it can be controlled separately from other landscaped areas. Smart irrigation controllers and drip emitters are recommended
- ❒ Spray heads, if any, are positioned to avoid direct spray into outlet structures

Planting

- ❒ Plants are installed consistent with approved planting plan
- ❒ Any trees and large shrubs are staked securely
- ❒ No fertilizer is added; compost tea may be used
- ❒ No native soil or clayey material are imported into the facility with plantings

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- ❒ 1"-2" mulch may be applied following planting; mulch selected to avoid floating
- ❒ Final elevation of soil mix maintained following planting
- ❒ Curb openings are free of obstructions

Final Engineering Inspection

- ❒ Drainage Management Area(s) are free of construction sediment and landscaped areas are stabilized
- ❒ Inlets are installed to ensure entry of runoff from adjoining pavement, have sufficient reveal (drop from the adjoining pavement to the top of the mulch or soil mix, and are not blocked
- ❒ Rock or other energy dissipation at piped or surface inlets is adequate
- ❒ Inflows from roof leaders and pipes are connected and operable
- ❒ Temporary flow diversions are removed
- ❒ Overflow outlets are configured to allow the facility to flood and fill to near rim before overflow
- ❒ Plantings are healthy and becoming established
- ❒ Irrigation is operable
- ❒ Facility drains rapidly; no surface ponding is evident
- ❒ Any accumulated construction debris, trash, or sediment is removed from facility
- ❒ Permanent signage is installed and is visible to site users and maintenance personnel

Page Number in Stormwater Control Plan	Source or Treatment Control Measure.	Plan Sheet #
6	Mark all inlets with the words “No Dumping! Flows to Bay” or similar.	GRD sheet# TBD
6	Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.	Landscape Plan Sheet # TBD
6	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.	Landscape Plan Sheet # TBD
6	Specify plants that are tolerant to saturated soil conditions, where landscaped areas are used to retain or detain stormwater.	Landscape Plan Sheet # TBD
6	Consider using pest-resistant plants, especially adjacent to hardscapes.	Landscape Plan Sheet # TBD
6	To insure successful establishment, select plants appropriate to site soil, slopes, climate, sun, wind, rain, land use, air movement, ecological	Landscape Plan Sheet # TBD

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	consistency and plant interactions.	
7	Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.	Architectural Plans Sheet # TBD
7	Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.	Architectural Plans Sheet # TBD
7	Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.	Architectural Plans Sheet # TBD
7	Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.	Architectural Plans Sheet # TBD
7	Avoid roofing, gutters, and trim made of copper or other unprotected metal that ay leach into runoff.	Architectural Plans Sheet # TBD

VIII. Certifications

The preliminary design of stormwater treatment and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.

Exhibit / Report Overview

The California Regional Water Quality Control Board of the Central Coast Region (Region 3) adopted the Post-Construction Requirements (PCRs) in July 2013. The County of Santa Barbara obtained a grant to assist designers and municipalities with the implementation of the PCRs. Through this grant, the County has developed, published, and released The Stormwater Technical Guide for Low Impact Development to ensure compliance with the Regional Board's PCRs. The development of the Post-Construction Stormwater Control Measures/LID features throughout the Hidden Canyon project will adhere to the Technical Guide as described below.

Due to the size of this proposed project, the project falls under the Tier 4 requirements (projects creating at least 22,500 SF of impervious surface). This residential development proposes the following:

- Minimize impervious surfaces
- Minimize runoff by dispersing/distributing runoff to landscaped areas
- Treat runoff with an approved and appropriately sized LID treatment system prior to discharge from the site.
- Prevent offsite discharge from events up to the 95th percentile rainfall event using Storm water Control Measures.
- Control peak flows to not exceed pre-project flows for the 2-year through 10-year events.

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Pre vs. Post

Storm Event Runoff (cfs)				
	2 year	**5 year**	**10 year**	**25 year**
Pre-Conditions	1.11	8.91	16.37	27.06
Post-Conditions	0	0	0.80	1.55

Pre-Condition Runoff

Events for Subcatchment 2.0: Pre East Native

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 YEAR	1.11	0.789	0.22
5 YEAR	8.91	2.157	0.59
10 YEAR	16.37	3.275	0.90
25 YEAR	27.06	4.840	1.33
50 YEAR	35.58	6.072	1.67
95th Percentile	0.42	0.412	0.11
100 YEAR	**44.40**	**7.340**	**2.01**

Note: Pre and Post construction runoff date were product using HydroCAD software with SBUH rain event data.

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Post-Condition Runoff

Direct Infiltration Basin

2-Year Event

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Summary for Pond 1: East Basin

Inflow Area =	42.207 ac,	38.92% Impervious,	Inflow Depth =	0.46"	for 2 YEAR event
Inflow =	6.09 cfs @	10.01 hrs,	Volume=	1.608 af	
Outflow =	0.61 cfs @	22.29 hrs,	Volume=	1.410 af,	Atten= 90%, Lag= 737.2 min
Discarded =	0.61 cfs @	22.29 hrs,	Volume=	1.410 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 208.51' @ 22.29 hrs Surf.Area= 35,008 sf Storage= 32,951 cf

Plug-Flow detention time= 527.1 min calculated for 1.409 af (88% of inflow)
Center-of-Mass det. time= 454.5 min (1,282.5 - 828.0)

Volume	Invert	Avail.Storage	Storage Description
#1	207.50'	358,537 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.50	30,551	0	0
208.00	32,752	15,826	15,826
209.00	37,216	34,984	50,810
210.00	41,765	39,491	90,300
211.00	46,398	44,082	134,382
212.00	51,119	48,759	183,140
213.00	55,932	53,526	236,666
214.00	60,912	58,422	295,088
215.00	65,987	63,450	358,537

Device	Routing	Invert	Outlet Devices
#1	Discarded	207.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Device 5	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 5	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.61 cfs @ 22.29 hrs HW=208.51' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└**5=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

5-Year Event

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Summary for Pond 1: East Basin

Inflow Area =	42.207 ac,	38.92% Impervious,	Inflow Depth =	0.89"	for 5 YEAR event
Inflow =	11.07 cfs @	10.01 hrs,	Volume=	3.131 af	
Outflow =	0.73 cfs @	24.16 hrs,	Volume=	1.701 af,	Atten= 93%, Lag= 849.0 min
Discarded =	0.73 cfs @	24.16 hrs,	Volume=	1.701 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 210.00' @ 24.16 hrs Surf.Area= 41,787 sf Storage= 90,501 cf

Plug-Flow detention time= 654.8 min calculated for 1.701 af (54% of inflow)
Center-of-Mass det. time= 438.6 min (1,269.3 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	207.50'	358,537 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.50	30,551	0	0
208.00	32,752	15,826	15,826
209.00	37,216	34,984	50,810
210.00	41,765	39,491	90,300
211.00	46,398	44,082	134,382
212.00	51,119	48,759	183,140
213.00	55,932	53,526	236,666
214.00	60,912	58,422	295,088
215.00	65,987	63,450	358,537

Device	Routing	Invert	Outlet Devices
#1	Discarded	207.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Device 5	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 5	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.73 cfs @ 24.16 hrs HW=210.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.73 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└**5=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

10-Year Event

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Summary for Pond 1: East Basin

Inflow Area =	42.207 ac,	38.92% Impervious,	Inflow Depth =	1.22"	for 10 YEAR event
Inflow =	15.15 cfs @	10.01 hrs,	Volume=	4.302 af	
Outflow =	1.57 cfs @	22.00 hrs,	Volume=	2.442 af,	Atten= 90%, Lag= 719.3 min
Discarded =	0.78 cfs @	22.00 hrs,	Volume=	1.840 af	
Primary =	0.80 cfs @	22.00 hrs,	Volume=	0.602 af	
Secondary=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 210.64' @ 22.00 hrs Surf.Area= 44,734 sf Storage= 118,020 cf

Plug-Flow detention time= 644.5 min calculated for 2.442 af (57% of inflow)
Center-of-Mass det. time= 439.7 min (1,267.4 - 827.7)

Volume	Invert	Avail.Storage	Storage Description
#1	207.50'	358,537 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.50	30,551	0	0
208.00	32,752	15,826	15,826
209.00	37,216	34,984	50,810
210.00	41,765	39,491	90,300
211.00	46,398	44,082	134,382
212.00	51,119	48,759	183,140
213.00	55,932	53,526	236,666
214.00	60,912	58,422	295,088
215.00	65,987	63,450	358,537

Device	Routing	Invert	Outlet Devices
#1	Discarded	207.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Device 5	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 5	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.78 cfs @ 22.00 hrs HW=210.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=0.80 cfs @ 22.00 hrs HW=210.64' (Free Discharge)
└**5=Orifice/Grate** (Passes 0.80 cfs of 1.54 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.80 cfs @ 2.55 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

25-Year Event

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Summary for Pond 1: East Basin

Inflow Area =	42.207 ac,	38.92% Impervious,	Inflow Depth =	1.68"	for 25 YEAR event
Inflow =	21.02 cfs @	10.02 hrs,	Volume=	5.898 af	
Outflow =	2.37 cfs @	20.59 hrs,	Volume=	3.825 af,	Atten= 89%, Lag= 634.6 min
Discarded =	0.83 cfs @	20.59 hrs,	Volume=	1.967 af	
Primary =	1.55 cfs @	20.59 hrs,	Volume=	1.858 af	
Secondary=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 211.26' @ 20.59 hrs Surf.Area= 47,621 sf Storage= 146,555 cf

Plug-Flow detention time= 596.4 min calculated for 3.825 af (65% of inflow)
Center-of-Mass det. time= 421.9 min (1,244.8 - 822.9)

Volume	Invert	Avail.Storage	Storage Description
#1	207.50'	358,537 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.50	30,551	0	0
208.00	32,752	15,826	15,826
209.00	37,216	34,984	50,810
210.00	41,765	39,491	90,300
211.00	46,398	44,082	134,382
212.00	51,119	48,759	183,140
213.00	55,932	53,526	236,666
214.00	60,912	58,422	295,088
215.00	65,987	63,450	358,537

Device	Routing	Invert	Outlet Devices
#1	Discarded	207.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	215.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Device 5	210.08'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 5	213.81'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	210.08'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.83 cfs @ 20.59 hrs HW=211.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.83 cfs)

Primary OutFlow Max=1.55 cfs @ 20.59 hrs HW=211.26' (Free Discharge)
└─**5=Orifice/Grate** (Passes 1.55 cfs of 5.51 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 1.55 cfs @ 4.43 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=207.50' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Appendix A

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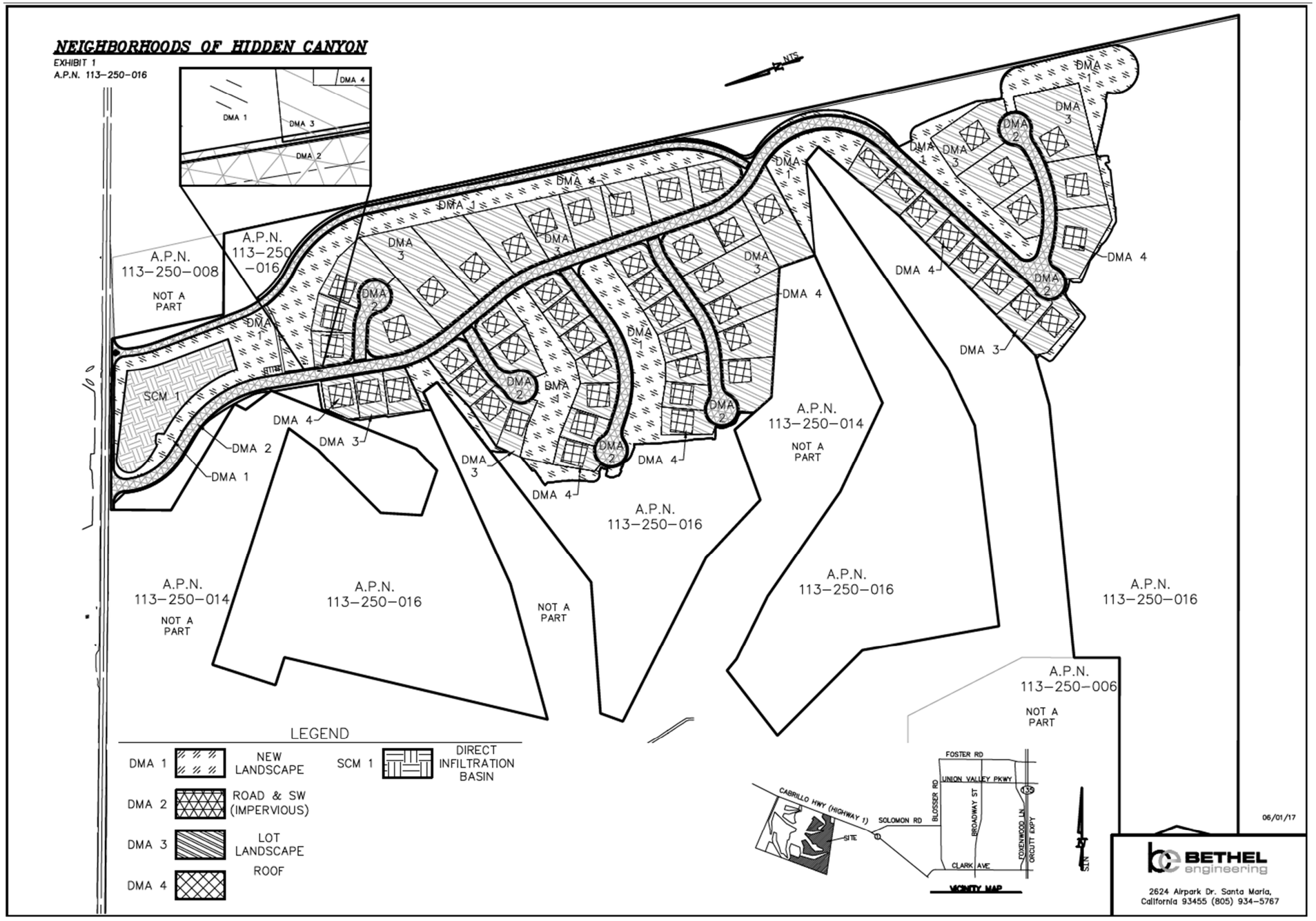

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Appendix B

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Central Coast Region Stormwater Control Measure Sizing Calculator

Version: 2/26/2014

1. Project Information

Project name:	Hidden Canyon
Project location:	Around Rancho Maria Golf Club 1950 HW1
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	1.5
Total project area (ft2):	1904539
Total new impervious area (ft2):	715587
Total replaced impervious in a USA (ft2):	0
Total replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	1122965

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA 1	Drains to SCM	495127	Landscape	New	SCM 1
DMA 2	Drains to SCM	330783	Concrete or asphalt	New	SCM 1
DMA 3	Drains to SCM	627838	Landscape	New	SCM 1
DMA 4	Drains to SCM	384804	Roof	New	SCM 1

DMA Summary Area Check

Total project impervious area (ft2):	715587
New impervious area (ft2):	715587
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	1122965

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
SCM 1	Direct Infiltration	2	HSG A/B	0.75	65987

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
SCM 1	55894	2.12	3.7

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name	Tributary DMA Area (ft2)	Tributary / SRA Area Ratio

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Appendix C

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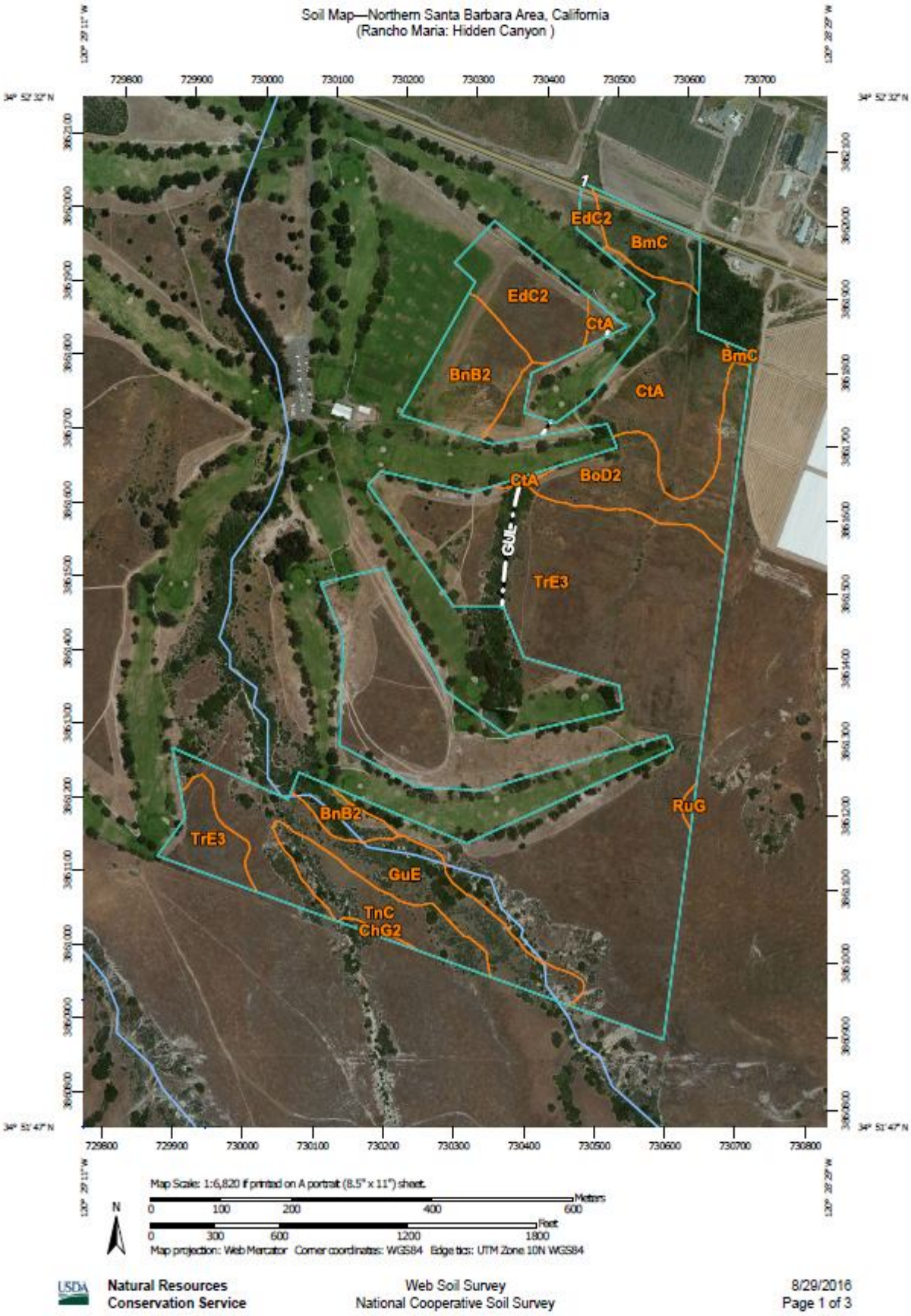

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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Northern Santa Barbara Area, California
Survey Area Data: Version 10, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Northern Santa Barbara Area, California (CA672)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BmC	Betteravia loamy sand, 2 to 9 percent slopes	2.8	2.7%
BnB2	Betteravia loamy sand, dark variant, 0 to 5 percent slopes, eroded	6.4	6.0%
BoD2	Botella loam, 2 to 15 percent slopes, eroded	6.0	5.6%
ChG2	Chamise shaly loam, 30 to 75 percent slopes, eroded	0.2	0.2%
CtA	Corralitos sand, 0 to 2 percent slopes	10.8	10.1%
EdC2	Elder sandy loam, 2 to 9 percent slopes, eroded	5.5	5.1%
GuE	Gullied land	9.7	9.1%
RuG	Rough broken land	0.2	0.2%
TnC	Tierra sandy loam, 2 to 9 percent slopes	4.3	4.0%
TrE3	Tierra loam, 5 to 30 percent slopes, severely eroded	60.8	57.0%
Totals for Area of Interest		**106.6**	**100.0%**

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Appendix D

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STORM WATER MAINTENANCE PLAN

FOR

Hidden Canyon
Around Rancho Maria Golf Club, 1950 Highway 1
Santa Barbara County, CA

June 1, 2017

BETHEL engineering

2624 Airpark Drive, Santa Maria • California 93455 • Tel 805-934-5767 • Fax 805-934-3448

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Purpose

This plan is intended to identify the methods and features contained in the storm water quality design of the project, and provide maintenance guidelines to insure proper operation of those facilities. The purpose and scope of this plan is to address specific on-site maintenance mitigation beyond the construction activity and address them in an ongoing long-term basis.

Project Description

Hidden Canyon is a residential development for the abandoned farmed land. The new project will consists of 55 new houses. The only pollutants that will be on the site will be that left by vehicles that visit the site. Including the material that will be used to construct and maintain the site.

Drainage Impedance & Pollution

Only pollutants from vehicles that visit will be found on the site. In rain events, this material could be carried into the regional basin along with trash and litter, likely to be found on site. Accumulation of these occurrences mentioned above will results in significant loss of drainage capacity. Therefore the site's drainage system shall be maintained by clearing/or removing hampering material from drainage inlets and outlets. The regional basins shall be cleared of any litter hindering filtration. For inlets, outlets, and regional basin locations see "Exhibit A" on the page 3.

The basin (see "Exhibit A" for basin location) is designed to pond and infiltrates minor storm rain water. In the event of larger storm runoff, debris, silts and pollutants carried toward the basin will be allowed to settle in the basin. Rip rap located at inlets of the basins, will help retard any debris, stockpile, silts and pollutants carried by storm water. Grass and vegetation within these areas will ensure pollutants will not discharge offsite. Therefore maintenance and irrigation of these areas is critical for proper design function.

Possible drainage obstructions and pollutants include the following:

Sands	Silts	Aggregate
Rock	Gravel	Oil
Trash	Litter	Grease

Soil Stabilization

As a part of this development, erosion control measures are required during construction. Those include standard "Best Management Practices" such as hydroseeding/hydromulching, erosion control blankets, and grading techniques. These measures address not only the construction phase of the project, but long-term erosion prevention for post-construction phase of development. All areas previously mentioned, should be maintained to insure not only the aesthetics of the site, but the erosion control aspects as well. Landscaping has been designed to address soil stability and includes generous planting, hydroseeding of exposed slopes, and mulching.

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Inspection and Maintenance Program

The project owner is responsible for executing maintenance of landscaping and drainage features. This recorded Maintenance Agreement (between the City of Santa Maria and "Hidden Canyon" property owner) provides the enforcement mechanism to ensure compliance with these maintenance requirements.

Owner Responsibilities

1) The property owner will ensure that all Bio-retention basins, and earth-en swales are operational and maintain drainage toward it's intended designed direction. No ponded water is to remain in swales for more than 72 hours.
2) If landscape activity requires ground disturbance in the landscape areas, ground disturbance is to be kept at a minimum. Erosion and sediment control measures are to be put in place and inspected throughout the rainy season (Oct. 1 – April 30) to prevent soils/silts from entering the basins and/or offsite storm drain system. Mulch, ground cover, or plant material is to be replaced as soon as possible to avoid bare soil from being transported away from the planting areas.
3) Inspections of the basin inlets and outlets throughout the entire site shall be performed prior to the rainy season (Oct. 1 – April 30) and should identify potential problems such as silt build-up inside structures and blockages within conveyance systems.
4) Records of all maintenance activities for a minimum of 5 years prior associated with the storm water control measures are to be documented and retained and be made available to the City upon request. Any deviations from this recommended maintenance are to be documented.
5) Landscape areas are to be inspected at least twice annually for erosion, damage to vegetation, sediment and debris accumulation. Maintenance may include watering during drought periods, reseeding of bare areas, and clearing of debris and blockages.
6) Prior to and after the rainy season (Oct. 1 – April 30), and after rainfall greater than 1.2"/24 hours, inspect all basins, including basin's outlets structures. If needed, remove leaves, litter, and all debris from inlets, outlets and basin bottom. Also inspect the basin bottom and slopes for erosion and restore as necessary.
7) Remove sediment from basins if accumulation is greater than or equal to 5% of the basin design volume or if re-suspension of sediment is observed in discharges of the design storm. Sediment removal is to be performed in early spring.
8) If ponded water is observed to remain in the basin for more than 72 hours mitigation measures are to be taken to prevent mosquito breeding.

These guidelines may be reviewed and amended as needed to address specific conditions for the project. New technology developments and techniques may replace the mitigation measures proposed in this plan if they provide equal or greater efficiency of storm water conveyance. The owner should examine the effectiveness of each maintenance measure and continue to improve the methods for maximum efficiency of the system.

The failure to maintain or the physical removal of any feature described herein is a zoning violation and can result in penalties including, but not limited to fines, property liens, and other actions for enforcement of a civil judgment.

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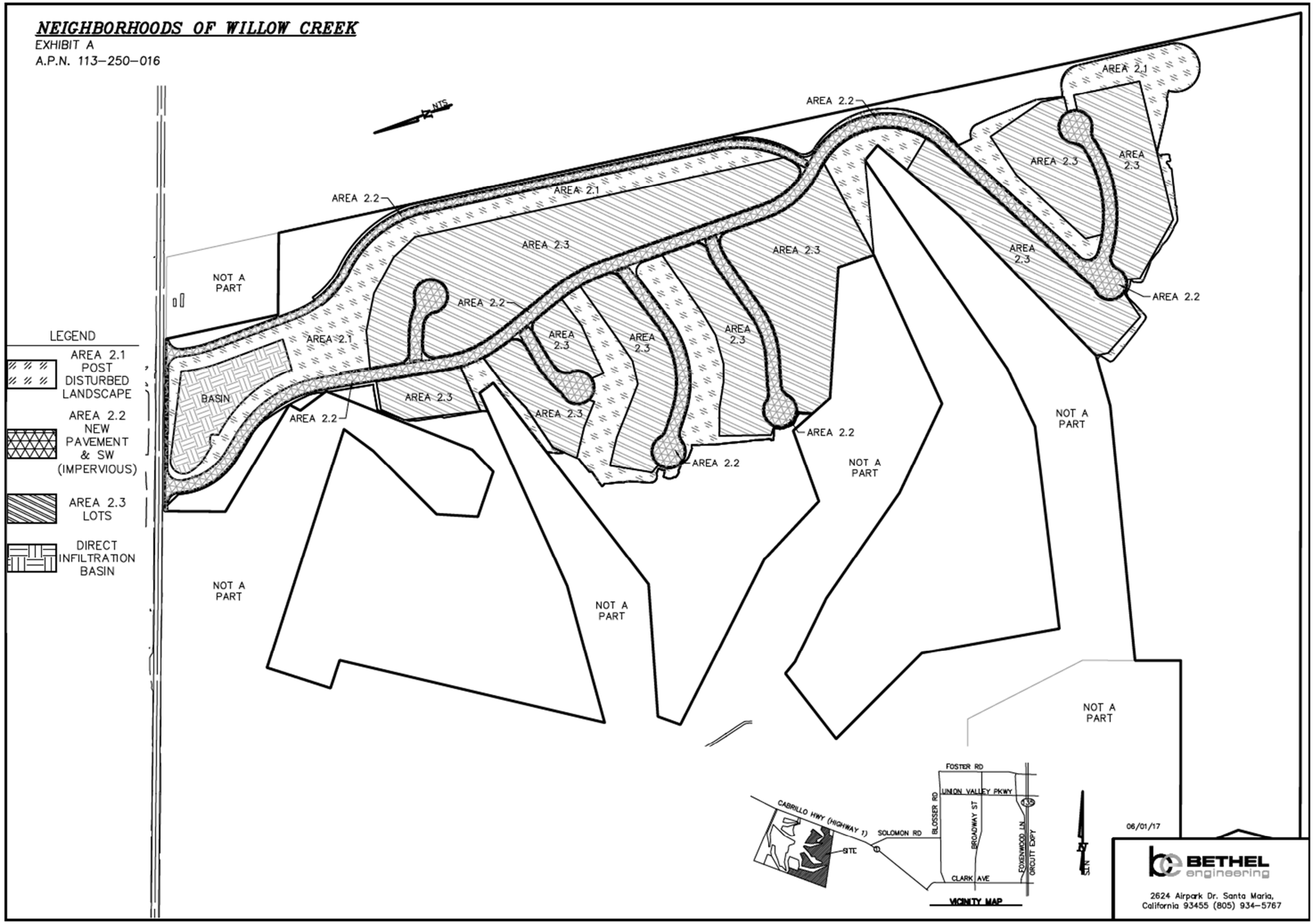

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Stormwater Control Plan

For

Willow Creek

Around Rancho Maria Golf Club, 1950 Highway 1

(Santa Barbara County, CA)

A.P.N. 113-250-017

June 1, 2017

Prepared for:
Anthony Wells
The HWM Group, Ltd. LLC
(805)922-9129

Prepared by:
Bethel Engineering
2624 Airpark Drive
Santa Maria, CA 93455
(805)934-5767

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Table of Contents

I. Project Data 3
II. Setting 3
II.A. Project Location and Description 3
II.B. Existing Site Features and Conditions 3
II.C. Opportunities and Constraints for the Stormwater Control 3
III. Low Impact Development Design Strategies 4
III.A. Optimization of Site Layout 4
III.A.1. Limitation of Development Envelope 4
III.A.2. Preservation of Natural Drainage Features 4
III.A.3. Setbacks from Creeks, Wetlands and Riparian Habitats 4
III.A.4. Minimization of Imperviousness 4
III.A.5. Use of Drainage as a Design Element 4
III.B. Use of Permeable Pavement 4
III.C. Dispersal of Runoff to Pervious areas 4
III.D. Stormwater Control Measures 4
IV. Documentation of Drainage Design 5
IV.A. Description of each Drainage Management Areas 5
IV.A.2.Drainage Management Area Descriptions 5
IV.B. Tabulation and Size Calculation 5
V. Source Control Measures 5
V.A. Site Activities and Potential Sources of Pollutants 5
V.B. Source Control Table 6
V.C. Features, Materials and Methods of Construction of Source Control BMP's 8
VI. Stormwater Facility Maintenance 8
VI.A. Ownership and Responsibility for Maintenance in Perpetuity 8
VI.B. Sumary of Maintenance Requirements for Each Stormwater Facility 8
VII. Construction Checklist 8
VIII. Certifications 12
Exhibit / Report Overview 12
Pre vs. Post 12
Appendix A 21
Appendix B 23
Appendix C 25
Appendix D 29

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I. Project Data

Project Name:	Willow Creek, Tract 14,823
Application Submittal Date:	June 1, 2017
Project Location:	Around Rancho Maria Golf Club, 1950 Highway 1 APN 113-250-017
Total Project site area:	1,696,512 S.F. / 38.95 Acres
Total New Impervious Surface Area:	643,528 S.F. / 14.77 Acres
Total Pre-Project Impervious Area:	0 S.F. / 0.0 acres
Total Post-Project Impervious Area:	643,528 S.F. / 14.77 Acres
Total Replaced Impervious Area:	0 S.F. / 0.0 acres
Watershed Management Zone:	Zone 4
Design Storm Frequency and Depth:	95th Percentile Rainfall / depth of 1.5 inches

II. Setting

II.A. Project Location and Description

The proposed residential development is located around the Rancho Maria Golf Club, 1950 Highway 1, in the Orcutt area of the Santa Barbara County, California. The property is 70.00 acres of some trees and plants but the vast majority is dried up grassland and dirt. The proposed project is only 38.95 acres. The remaining 29.31 acres will be left as is. For the calculations of this project only the 38.95 acres that will be disturbed will be considered.

II.B. Existing Site Features and Conditions

The topography of this site has steep and flat areas. The highest point is located at the southwest side of the site. The highest point slopes north towards the gullied land. The east half section has slopes ranging from 30% to 2%. The site is pervious with no buildings or hardscape. There is a gully that runs southwest to northwest on the left side of the site. The proposed residential design has been place on the right side of the site so the gully and creek would not have an effect on the design. Storm water currently drains either into the gullied land, creek, or north onto the golf course via sheet flow across the surface and percolates. The USDA, Natural Resources Conservation Service, Web Soil Survey, determines that the site consists of Botella clay loam, Chamise shaly loam, Corralitos loamy sand, Gullied land, Riverwash, Pleasanton sandy loam, and Tierra sandy loam, having a significant amount of clay component (see Exhibit 1 of Appendix C). The definitions in the Stormwater Technical Guide helped determine the site's soil would fit into the HSG A/B category (sandy soil). These categories were used in the SCM Sizing Calculator (see Exhibit 1 of Appendix B).

II.C. Opportunities and Constraints for the Stormwater Control

The opportunities selected for stormwater control include: diverting drainage to landscaped areas utilizing native vegetation to promote infiltration. In addition, the grading design will direct / transport the storm water to the site's two direct infiltration facilities. The two basins will hold the required volume for the entire proposed project except the entrance road. The bio-retention area will hold the entrance volume. The basins and bio-retentions have been strategically located in the lowest areas to provide for adequate slopes to help convey the stormwater. This minimizes the possibility of ponding on the hardscapes. The landscaped planters have been placed throughout the project to absorb stormwater and minimize the runoff that would otherwise flow into the main infiltration facilities during a 1.5 inch storm event (95 percentile storm). This site's design, layout, and grading promote on-site storm water containment / infiltration, within landscape planters and a direct infiltration facility.

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III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of Development Envelope

Due to the nature of this site our design was limited based on the steep and long continuous slopes and soils in silt or find sand. Knowing this we lowered the site to level out with the existing golf course.

III.A.2. Preservation of Natural Drainage Features

The sites current storm water runoff primarily flows up North. We were able to design storm water features that withheld the maximum amount of runoff for our site for the 1.5 inch storm event onto the basins. Any offsite flow will flow past our features and into the gully or stream/canal.

III.A.3. Setbacks from Creeks, Wetlands and Riparian Habitats

The location of this site there is a 200 feet agriculture setback and a 100 foot agriculture setback on the west side of the property. Currently the property on the west side of the site is being used for agricultural purposes. The 200 foot setback, for the site, runs along the west side property up to where the land is farmed. After that there is only a 100 foot setback. There are also a couple of easements.

III.A.4. Minimization of Imperviousness

The site design for this residential area is based on the minimization of impervious surfaces. Additional goals are to provide adequate vehicular and pedestrian accessibility to the residential structure on the site as-well-as creating a design that minimizes the need for ongoing maintenance on the basins and the bio-retentions. With this design the site has the imperviousness minimized while still capturing the required 1.5 inch storm and allowing that runoff to percolate on site.

III.A.5. Use of Drainage as a Design Element

The site design and layout directs storm water towards the basin or bio-retention facilities. In Exhibit 1 (see page 1 of Appendix A), the basin and bio-retentions were placed to receive water from downspouts and designed slopes. This allows the maximum possible amount of storm water to enter LID facilities during small storms and large storms.

III.B. Use of Permeable Pavement

The design of this project did not require additional space. No permeable pavers/pavement were designed for the project. The basin and bio retention designed is large enough to withhold the storm water flow.

III.C. Dispersal of Runoff to Pervious areas

The sites stormwater runoff is to achieve the site stormwater features through the use of underground drains lines, grading and sheet flow achieved due the sites grading. The grading of the site is the largest contributor to the runoff being dispersed to the pervious areas of the site and being allowed to infiltrate the maximum amount of runoff for the pervious area available.

III.D. Stormwater Control Measures

The stormwater control measures (SCMs) being proposed are designed to be direct infiltration and bio retention for the storm water that fall on these areas. The Drainage Management Areas (DMAs) drain to the basins or bio-retentions (see page 1 of Appendix A).

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IV. Documentation of Drainage Design

IV.A. Description of each Drainage Management Areas

Table 1: DMA Exhibit 1 reference

DMA	AREA (SF)	Drains to
DMA 1	375,379	Self-Retaining
DMA 2A	326,920	SCM 1
DMA 2B	41,351	SCM 2
DMA 3	612,261	Self-Retaining
DMA 4	275,257	SCM 1

Table 2: SCM Exhibit 1 reference

SCM	TYPE	AREA (SF)
SCM 1	Direct Infiltration	65,344
SCM 2	Bio retention	6,375

IV.A.2.Drainage Management Area Descriptions

DMA 1, totaling 375,379 square feet, drains new landscape. DMA 1 is self-retaining landscaped areas.

DMA 2A, totaling 326,920 square feet, drains roads and sidewalk of the site. DMA 2A sheet flows into SCM 1.

DMA 2B, totaling 41,351 square feet, drains the entrance road and sidewalk of the site. DMA 2B sheets flow into SCM 2.

DMA 3, totaling 612,261 square feet, drains the landscape area for each property. DMA 3 drains to the roads and onto SCM 1.

DMA 4, totaling 275,257 square feet, drains the roof tops. DMA 4 drains to the property landscape into the roads and sheet flows into SCM 1.

SCM 1, totaling 65,344 square feet, captures runoff from impervious areas and landscape areas. SCM 1 captures DMA 2A and DMA 4. SCM 1 is a direct infiltration basin.

SCM 2, totaling 6,375 square feet, captures runoff from impervious areas. SCM 2 captures DMA 2B. SCM 2 is bio retention.

IV.B. Tabulation and Size Calculation

For stormwater control measure calculation and tabulations refer to Central Coast Region Stormwater Control Measure Sizing Calculator in “Appendix B”.

V. Source Control Measures

V.A. Site Activities and Potential Sources of Pollutants

The APN 113-250-017 storm drainage patterns (as proposed) direct storm water to direct infiltration facilities storm events larger than the designed 1.5 inch event will also achieve the infiltration facilities,

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but will be able to leave the site through under drains, which will allow stormwater to transfer from the basins and bio-retention facilities to the storm drain system. Any potential sources of pollutants that could be transported to the direct infiltration facilities could also be transported to the storm drain system. Pollutants could be from the illegal dumping of chemicals into basins as-well-as pollutants left by vehicles that visit the site. In addition, the materials used to construct and maintain the site could also be possible sources of pollution. Overflow from landscape areas can carry pesticides. Storm water from roofs can carry metals. Drains made of copper or other materials with an unprotected surface may cast-off metal particles to the main basins. Parking areas and hardscapes may contribute litter that can be carried into the basins. All areas should be kept clean to minimize the possibility of litter making its way into the storm water system.

V.B. Source Control Table

Potential source of runoff pollutants	**Permanent source control BMPs**	**Operational Source Control BMPs**
On-site storm drain inlet (unauthorized non-stormwater discharges and accidental spills or leaks)	Mark all inlets with the words "No Dumping! Flows to Bay" or similar	Maintain and periodically replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees or operators See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbook at www.casqa.org/resources/bmp-handbooks
Interior Floor Drains	State that interior floor drains will be plumbed to the sanitary sewer.	Inspect and maintain drains to prevent blockages and overflow.
Need for Future Indoor and structural pest control	Note building design features that discourage entry of pests.	Provide Integrated Pest Management information to owner, leases, and operators.
Landscape/ Outdoor Pesticide Use/ building and Ground Maintenance	State that final landscape plans will accomplish all of the following: • Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbook at www.casqa.org/resources/bmp-handbooks Provide IPM information to new owners, lessees and operators.

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	• Specify plants that are tolerant to saturated soil conditions, where landscaped areas are used to retain or detain stormwater. • Consider using pest-resistant plants, especially adjacent to hardscapes. • To insure successful establishment, select plants appropriate to site soil, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions. •	
Miscellaneous Drain or Wash Water or other Sources • Boiler Drains • Condensate drain lines • Rooftop Equipment • Drainage Sumps • Roofing, gutters and trim	Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. Avoid roofing, gutters, and trim made of copper or other unprotected metal that ay leach into runoff.	
Plazas, sidewalks and parking lots		Sweep plazas, sidewalks and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser to the sanitary sewer not to a storm drain.

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V.C. Features, Materials and Methods of Construction of Source Control BMP's

The stormwater features are to be built per the grading, landscape and architectural plans and material and methods of construction are to be determined by the owner/developer and contractors.

VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

Signed ownership and responsibility for maintenance agreement to be on file at the County of Santa Barbara Project Clean Water, Water Resources Division Public Works Department, 123 East Anapamu Street, Santa Barbara, CA.

VI.B. Sumary of Maintenance Requirements for Each Stormwater Facility

For maintenance requirements, refer to the Stormwater Maintenance Plan in "Appendix D".

VII. Construction Checklist

Layout (to be confirmed prior to beginning excavation)

- ❒ Square footage of the facility meets or exceeds minimum shown in Stormwater Control Plan
- ❒ Site grading and grade breaks are consistent with the boundaries of the tributary Drainage Management Area(s) (DMAs) shown in the Stormwater Control Plan
- ❒ Inlet elevation of the facility is low enough to receive drainage from the entire tributary DMA
- ❒ Locations and elevations of overland flow or piping, including roof leaders, from impervious areas to the facility have been laid out and any conflicts resolved
- ❒ Rim elevation of the facility is laid out to be level all the way around, or elevations are consistent with a detailed cross-section showing location and height of interior dams
- ❒ Locations for vaults, utility boxes, and light standards have been identified so that they will not conflict with the facility
- ❒ Location for signage is identified
- ❒ Facility is protected as needed from construction-phase runoff and sediment

Excavation (to be confirmed prior to backfilling or pipe installation)

- ❒ Excavation conducted with materials and techniques to minimize compaction of soils within the facility area
- ❒ Excavation is to accurate area and depth
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ Vertical moisture barrier, if specified, has been added to protect adjacent pavement or structures.
- ❒ Native soils at bottom of excavation are ripped or loosened to promote infiltration

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Overflow or Surface Connection to Storm Drainage
(to be confirmed prior to backfilling with any materials)

- ❒ Overflow is at specified elevation
- ❒ No knockouts or side inlets are in overflow riser
- ❒ Overflow location selected to minimize surface flow velocity (near, but offset from, inlet recommended)
- ❒ Grating excludes mulch and litter (beehive or atrium-style grates with ¼" openings recommended)
- ❒ Overflow is connected to storm drain via appropriately sized piping

Underground connection to storm drain/outlet orifice
(to be confirmed prior to backfilling with any materials)

- ❒ Perforated pipe underdrain (PVC SDR 35 or approved equivalent) is installed with holes facing down
- ❒ Perforated pipe is connected to storm drain at specified elevation (typ. bottom of soil elevation)
- ❒ Cleanouts are in accessible locations and connected via sweep bends
- ❒ Monitoring well, if required, is installed.
- ❒ Structures (arches or large diameter pipes) for additional surface storage are installed as shown in plans and specifications and have the specified volume

Drain Rock/Subdrain (to be confirmed prior to installation of soil mix)

- ❒ Rock is installed as specified. Class 2 permeable, Caltrans specification 68-2.02(F)(3) recommended, or 4"-6" depth of pea gravel is installed at the top of the crushed rock layer to prevent migration of fines into gravel layer
- ❒ Rock is smoothed to a level top elevation. Depth and top elevation are as shown in plans
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ No filter fabric is placed between the subdrain and soil mix layers

Soil Mix

- ❒ Soil mix is as specified.
- ❒ Mix installed in lifts not exceeding 12"
- ❒ Mix is not compacted during installation but may be thoroughly wetted to encourage consolidation
- ❒ Mix is smoothed to a level top elevation. Depth of mix (24" min.) and top elevation are as shown in plans, accounting for depth of mulch to follow and required reservoir depth

Irrigation

- ❒ Irrigation system is installed so it can be controlled separately from other landscaped areas. Smart irrigation controllers and drip emitters are recommended
- ❒ Spray heads, if any, are positioned to avoid direct spray into outlet structures

Planting

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- ❒ Plants are installed consistent with approved planting plan
- ❒ Any trees and large shrubs are staked securely
- ❒ No fertilizer is added; compost tea may be used
- ❒ No native soil or clayey material are imported into the facility with plantings
- ❒ 1"-2" mulch may be applied following planting; mulch selected to avoid floating
- ❒ Final elevation of soil mix maintained following planting
- ❒ Curb openings are free of obstructions

Final Engineering Inspection

- ❒ Drainage Management Area(s) are free of construction sediment and landscaped areas are stabilized
- ❒ Inlets are installed to ensure entry of runoff from adjoining pavement, have sufficient reveal (drop from the adjoining pavement to the top of the mulch or soil mix, and are not blocked
- ❒ Rock or other energy dissipation at piped or surface inlets is adequate
- ❒ Inflows from roof leaders and pipes are connected and operable
- ❒ Temporary flow diversions are removed
- ❒ Overflow outlets are configured to allow the facility to flood and fill to near rim before overflow
- ❒ Plantings are healthy and becoming established
- ❒ Irrigation is operable
- ❒ Facility drains rapidly; no surface ponding is evident
- ❒ Any accumulated construction debris, trash, or sediment is removed from facility
- ❒ Permanent signage is installed and is visible to site users and maintenance personnel

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Page Number in Stormwater Control Plan	Source or Treatment Control Measure.	Plan Sheet #
6	Mark all inlets with the words "No Dumping! Flows to Bay" or similar.	GRP sheet# TBD
6	Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.	Landscape Plan Sheet # TBD
6	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.	Landscape Plan Sheet # TBD
6	Specify plants that are tolerant to saturated soil conditions, where landscaped areas are used to retain or detain stormwater.	Landscape Plan Sheet # TBD
7	Consider using pest-resistant plants, especially adjacent to hardscapes.	Landscape Plan Sheet # TBD
7	To insure successful establishment, select plants appropriate to site soil, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	Landscape Plan Sheet # TBD
7	Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.	Architectural Plans Sheet # TBD
7	Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.	Architectural Plans Sheet # TBD
7	Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.	Architectural Plans Sheet # TBD
7	Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.	Architectural Plans Sheet # TBD
7	Avoid roofing, gutters, and trim made of copper or other unprotected metal that ay leach into runoff.	Architectural Plans Sheet # TBD

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VIII. Certifications

The preliminary design of stormwater treatment and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.

Exhibit / Report Overview

The California Regional Water Quality Control Board of the Central Coast Region (Region 3) adopted the Post-Construction Requirements (PCRs) in July 2013. The County of Santa Barbara obtained a grant to assist designers and municipalities with the implementation of the PCRs. Through this grant, the County has developed, published, and released The Stormwater Technical Guide for Low Impact Development to ensure compliance with the Regional Board's PCRs. The development of the Post-Construction Stormwater Control Measures/LID features throughout the Willow Creek project will adhere to the Technical Guide as described below.

Due to the size of this proposed project, the project falls under the Tier 4 requirements (projects creating at least 22,500 SF of impervious surface). This residential development proposes the following:

- Minimize impervious surfaces
- Minimize runoff by dispersing/distributing runoff to landscaped areas
- Treat runoff with an approved and appropriately sized LID treatment system prior to discharge from the site.
- Prevent offsite discharge from events up to the 95th percentile rainfall event using Storm water Control Measures.
- Control peak flows to not exceed pre-project flows for the 2-year through 10-year events.

Pre vs. Post

Storm Event Runoff (cfs)				
	2 year	**5 year**	**10 year**	**25 year**
Pre-Conditions	2.86	8.99	13.86	20.52
Post-Conditions	0.25	1.04	1.43	1.84

Pre-Condition Runoff

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 YEAR	2.86	1.347	0.42
5 YEAR	8.99	2.982	0.92
10 YEAR	13.86	4.217	1.30
25 YEAR	20.52	5.876	1.81
50 YEAR	25.65	7.145	2.20
95th Percentile	1.34	0.839	0.26
100 YEAR	**30.86**	**8.426**	**2.60**

Note: Pre and Post construction runoff date were product using HydroCAD software with SBUH rain event data.

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Post-Condition Runoff

Direct Infiltration Basin

2-Year Event

Inflow Area = 32.826 ac, 49.11% Impervious, Inflow Depth = 0.57" for 2 YEAR event
Inflow = 6.58 cfs @ 10.00 hrs, Volume= 1.553 af
Outflow = 0.90 cfs @ 14.75 hrs, Volume= 1.515 af, Atten= 86%, Lag= 284.9 min
Discarded = 0.65 cfs @ 14.75 hrs, Volume= 1.316 af
Primary = 0.25 cfs @ 14.75 hrs, Volume= 0.199 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 233.48' @ 14.75 hrs Surf.Area= 37,563 sf Storage= 25,057 cf

Plug-Flow detention time= 387.2 min calculated for 1.515 af (98% of inflow)
Center-of-Mass det. time= 371.6 min (1,187.6 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	127,768 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.00'	127,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		255,594 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.50	14,738	0	0
233.00	16,154	7,723	7,723
234.00	19,091	17,623	25,346
235.00	22,176	20,634	45,979
236.00	25,479	23,828	69,807
237.00	28,968	27,224	97,030
238.00	32,508	30,738	127,768

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.00	18,784	0	0
234.00	21,337	20,061	20,061
235.00	24,037	22,687	42,748
236.00	26,854	25,446	68,193
237.00	29,787	28,321	96,514
238.00	32,837	31,312	127,826

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 5	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 5	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.65 cfs @ 14.75 hrs HW=233.48' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.65 cfs)

Primary OutFlow Max=0.25 cfs @ 14.75 hrs HW=233.48' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Orifice/Grate** (Passes 0.25 cfs of 1.14 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.25 cfs @ 1.63 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

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5-Year Event

Inflow Area =	32.826 ac,	49.11% Impervious,	Inflow Depth =	1.06"	for 5 YEAR event
Inflow =	12.04 cfs @	10.00 hrs,	Volume=	2.910 af	
Outflow =	1.75 cfs @	14.45 hrs,	Volume=	2.777 af,	Atten= 85%, Lag= 266.8 min
Discarded =	0.71 cfs @	14.45 hrs,	Volume=	1.565 af	
Primary =	1.04 cfs @	14.45 hrs,	Volume=	1.213 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 234.08' @ 14.45 hrs Surf.Area= 40,915 sf Storage= 48,827 cf

Plug-Flow detention time= 388.8 min calculated for 2.777 af (95% of inflow)
Center-of-Mass det. time= 359.9 min (1,173.7 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	127,768 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.00'	127,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		255,594 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.50	14,738	0	0
233.00	16,154	7,723	7,723
234.00	19,091	17,623	25,346
235.00	22,176	20,634	45,979
236.00	25,479	23,828	69,807
237.00	28,968	27,224	97,030
238.00	32,508	30,738	127,768

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.00	18,784	0	0
234.00	21,337	20,061	20,061
235.00	24,037	22,687	42,748
236.00	26,854	25,446	68,193
237.00	29,787	28,321	96,514
238.00	32,837	31,312	127,826

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 5	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 5	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.71 cfs @ 14.45 hrs HW=234.08' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.71 cfs)

Primary OutFlow Max=1.04 cfs @ 14.45 hrs HW=234.08' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Orifice/Grate** (Passes 1.04 cfs of 4.85 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 1.04 cfs @ 3.81 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

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10-Year Event

Inflow Area =	32.826 ac,	49.11% Impervious,	Inflow Depth =	1.43"	for 10 YEAR event
Inflow =	16.26 cfs @	10.01 hrs,	Volume=	3.921 af	
Outflow =	2.17 cfs @	15.32 hrs,	Volume=	3.662 af,	Atten= 87%, Lag= 318.9 min
Discarded =	0.76 cfs @	15.32 hrs,	Volume=	1.722 af	
Primary =	1.41 cfs @	15.32 hrs,	Volume=	1.941 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 234.60' @ 15.32 hrs Surf.Area= 43,925 sf Storage= 70,905 cf

Plug-Flow detention time= 429.8 min calculated for 3.657 af (93% of inflow)
Center-of-Mass det. time= 389.1 min (1,199.4 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	127,768 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.00'	127,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		255,594 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.50	14,738	0	0
233.00	16,154	7,723	7,723
234.00	19,091	17,623	25,346
235.00	22,176	20,634	45,979
236.00	25,479	23,828	69,807
237.00	28,968	27,224	97,030
238.00	32,508	30,738	127,768

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.00	18,784	0	0
234.00	21,337	20,061	20,061
235.00	24,037	22,687	42,748
236.00	26,854	25,446	68,193
237.00	29,787	28,321	96,514
238.00	32,837	31,312	127,826

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 5	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 5	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.76 cfs @ 15.32 hrs HW=234.60' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.76 cfs)

Primary OutFlow Max=1.41 cfs @ 15.32 hrs HW=234.60' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Orifice/Grate** (Passes 1.41 cfs of 7.87 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 1.41 cfs @ 5.16 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

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25-Year Event

Inflow Area =	32.826 ac,	49.11% Impervious,	Inflow Depth =	1.93"	for 25 YEAR event
Inflow =	21.99 cfs @	10.01 hrs,	Volume=	5.277 af	
Outflow =	2.63 cfs @	16.70 hrs,	Volume=	4.796 af,	Atten= 88%, Lag= 401.3 min
Discarded =	0.84 cfs @	16.70 hrs,	Volume=	1.891 af	
Primary =	1.79 cfs @	16.70 hrs,	Volume=	2.905 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 235.33' @ 16.70 hrs Surf.Area= 48,212 sf Storage= 104,151 cf

Plug-Flow detention time= 490.3 min calculated for 4.796 af (91% of inflow)
Center-of-Mass det. time= 434.5 min (1,240.0 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	127,768 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	233.00'	127,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		255,594 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.50	14,738	0	0
233.00	16,154	7,723	7,723
234.00	19,091	17,623	25,346
235.00	22,176	20,634	45,979
236.00	25,479	23,828	69,807
237.00	28,968	27,224	97,030
238.00	32,508	30,738	127,768

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
233.00	18,784	0	0
234.00	21,337	20,061	20,061
235.00	24,037	22,687	42,748
236.00	26,854	25,446	68,193
237.00	29,787	28,321	96,514
238.00	32,837	31,312	127,826

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**0.750 in/hr Exfiltration over Surface area**
#2	Primary	237.35'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 5	233.25'	**5.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 5	236.05'	**48.0" W x 48.0" H Vert. Orifice/Grate** C= 0.600
#5	Primary	233.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.84 cfs @ 16.70 hrs HW=235.33' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.84 cfs)

Primary OutFlow Max=1.79 cfs @ 16.70 hrs HW=235.33' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Orifice/Grate** (Passes 1.79 cfs of 10.68 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 1.79 cfs @ 6.58 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

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Bio-Retention Basin

2-Year Event

Inflow Area =	1.329 ac,	83.86% Impervious,	Inflow Depth =	0.22"	for 2 YEAR event
Inflow =	0.16 cfs @	9.98 hrs,	Volume=	0.024 af	
Outflow =	0.03 cfs @	9.55 hrs,	Volume=	0.024 af,	Atten= 83%, Lag= 0.0 min
Discarded =	0.03 cfs @	9.55 hrs,	Volume=	0.024 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 208.71' @ 11.04 hrs Surf.Area= 1,500 sf Storage= 247 cf

Plug-Flow detention time= 66.4 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 66.4 min (794.7 - 728.3)

Volume	Invert	Avail.Storage	Storage Description
#1	208.30'	1,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			4,500 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,550 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
208.30	1,500	0	0
209.30	1,500	1,500	1,500
210.30	1,500	1,500	3,000
211.30	1,500	1,500	4,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Discarded	208.30'	**0.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 9.55 hrs HW=208.34' (Free Discharge)
└─**4=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=208.30' (Free Discharge)
├─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
├─**2=Orifice/Grate** (Controls 0.00 cfs)
└─**3=Orifice/Grate** (Controls 0.00 cfs)

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5-Year Event

Inflow Area =	1.329 ac,	83.86% Impervious,	Inflow Depth =	0.34"	for 5 YEAR event
Inflow =	0.23 cfs @	9.98 hrs,	Volume=	0.037 af	
Outflow =	0.03 cfs @	8.95 hrs,	Volume=	0.037 af,	Atten= 89%, Lag= 0.0 min
Discarded =	0.03 cfs @	8.95 hrs,	Volume=	0.037 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 209.08' @ 12.11 hrs Surf.Area= 1,500 sf Storage= 468 cf

Plug-Flow detention time= 155.0 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 154.8 min (883.6 - 728.9)

Volume	Invert	Avail.Storage	Storage Description
#1	208.30'	1,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 4,500 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,550 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
208.30	1,500	0	0
209.30	1,500	1,500	1,500
210.30	1,500	1,500	3,000
211.30	1,500	1,500	4,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	208.30'	**0.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 8.95 hrs HW=208.34' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=208.30' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

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10-Year Event

Inflow Area =	1.329 ac,	83.86% Impervious,	Inflow Depth =	0.66"	for 10 YEAR event
Inflow =	0.28 cfs @	9.98 hrs,	Volume=	0.073 af	
Outflow =	0.05 cfs @	18.33 hrs,	Volume=	0.073 af,	Atten= 82%, Lag= 501.2 min
Discarded =	0.03 cfs @	8.60 hrs,	Volume=	0.054 af	
Primary =	0.02 cfs @	18.33 hrs,	Volume=	0.020 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 209.54' @ 18.33 hrs Surf.Area= 1,500 sf Storage= 742 cf

Plug-Flow detention time= 220.7 min calculated for 0.073 af (100% of inflow)
Center-of-Mass det. time= 221.0 min (1,070.7 - 849.7)

Volume	Invert	Avail.Storage	Storage Description
#1	208.30'	1,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			4,500 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,550 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
208.30	1,500	0	0
209.30	1,500	1,500	1,500
210.30	1,500	1,500	3,000
211.30	1,500	1,500	4,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Discarded	208.30'	**0.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 8.60 hrs HW=208.34' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.02 cfs @ 18.33 hrs HW=209.54' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
├**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 2.01 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

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25-Year Event

Inflow Area = 1.329 ac, 83.86% Impervious, Inflow Depth = 1.07" for 25 YEAR event
Inflow = 0.34 cfs @ 9.98 hrs, Volume= 0.118 af
Outflow = 0.07 cfs @ 19.74 hrs, Volume= 0.118 af, Atten= 79%, Lag= 585.3 min
Discarded = 0.03 cfs @ 8.25 hrs, Volume= 0.063 af
Primary = 0.05 cfs @ 19.74 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 209.96' @ 19.74 hrs Surf.Area= 1,500 sf Storage= 994 cf

Plug-Flow detention time= 209.8 min calculated for 0.118 af (100% of inflow)
Center-of-Mass det. time= 210.1 min (1,140.6 - 930.4)

Volume	Invert	Avail.Storage	Storage Description
#1	208.30'	1,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			4,500 cf Overall x 40.0% Voids
#2	211.30'	750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,550 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
208.30	1,500	0	0
209.30	1,500	1,500	1,500
210.30	1,500	1,500	3,000
211.30	1,500	1,500	4,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.30	1,500	0	0
211.80	1,500	750	750

Device	Routing	Invert	Outlet Devices
#1	Primary	211.80'	**1.0' long x 2.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	209.30'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	211.70'	**18.0" x 18.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Discarded	208.30'	**0.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 8.25 hrs HW=208.34' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.05 cfs @ 19.74 hrs HW=209.96' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
├**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 3.71 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

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Appendix A

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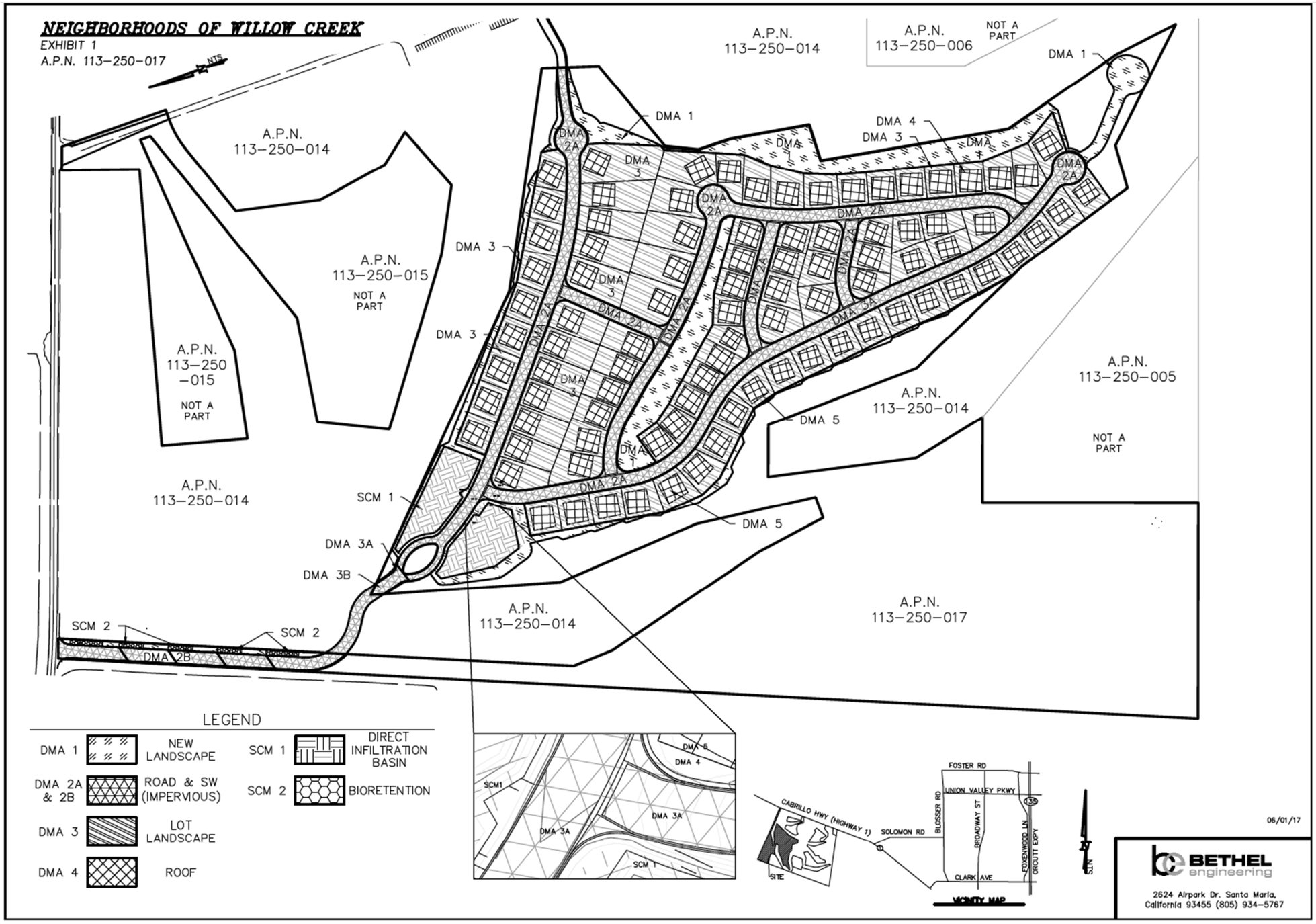

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Appendix B

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Central Coast Region Stormwater Control Measure Sizing Calculator

Version: 2/26/2014

1. Project Information

Project name:	Willow Creek
Project location:	Around Rancho Maria Golf Club 1950 HW1
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	1.5
Total project area (ft2):	1,696,512
Total new impervious area (ft2):	643,528
Total replaced impervious in a USA (ft2):	0
Total replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	987,640

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA 1	Self-Retaining	375,379	Landscape	New	
DMA 2A	Drains to SCM	326,920	Concrete or asphalt	New	SCM 1
DMA 2B	Drains to SCM	41,351	Concrete or asphalt	New	SCM 2
DMA 3	Self-Retaining	612,261	Landscape	New	
DMA 4	Drains to SCM	275,257	Roof	New	SCM 1

DMA Summary Area Check	
Total project impervious area (ft2):	643,528
New impervious area (ft2):	643,528
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	987,640

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
SCM 1	Direct Infiltration	2	HSG A/B	0.75	65,344
SCM 2	Bio-retention	1	HSG A/B	0.75	6375

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
SCM 1	43,062	1.65	0.0
SCM 2	1,229	0.48	0.0

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name	Tributary DMA Area (ft2)	Tributary / SRA Area Ratio
DMA 1	375,379		0	0.00
DMA 3	612,261		0	0.00

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Appendix C

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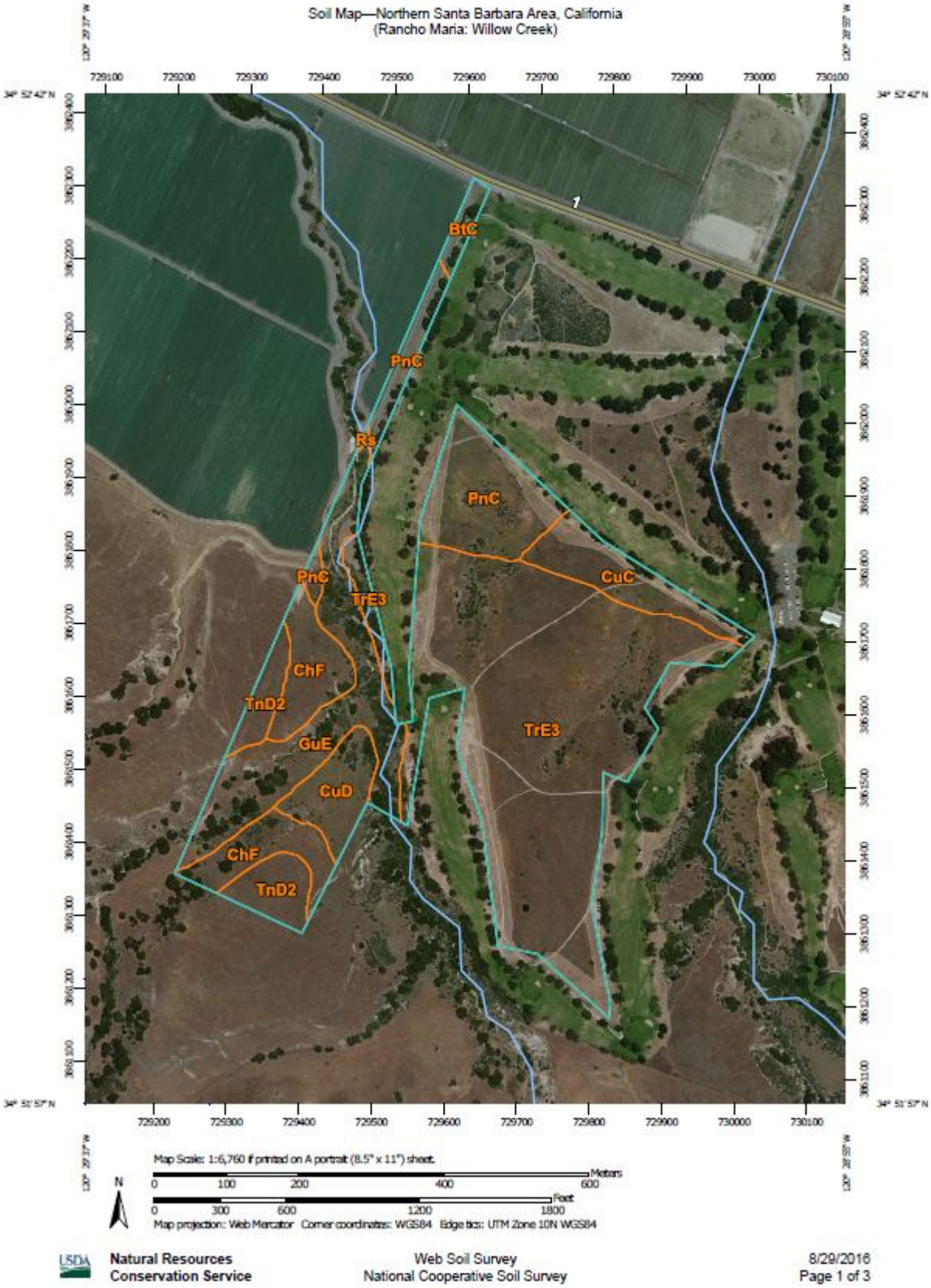

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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Northern Santa Barbara Area, California
Survey Area Data: Version 10, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Northern Santa Barbara Area, California (CA672)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BtC	Botella clay loam, 2 to 9 percent slopes, MLRA 14	0.8	1.2%
ChF	Chamise shaly loam, 15 to 45 percent slopes	6.1	8.6%
CuC	Corralitos loamy sand, 2 to 9 percent slopes	4.1	5.8%
CuD	Corralitos loamy sand, 9 to 15 percent slopes	3.1	4.3%
GuE	Gullied land	10.0	14.2%
PnC	Pleasanton sandy loam, 2 to 9 percent slopes	8.1	11.5%
Rs	Riverwash	0.1	0.1%
TnD2	Tierra sandy loam, 9 to 15 percent slopes, eroded	3.6	5.0%
TrE3	Tierra loam, 5 to 30 percent slopes, severely eroded	34.9	49.3%
Totals for Area of Interest		**70.7**	**100.0%**

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Appendix D

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STORM WATER MAINTENANCE PLAN

FOR

Willow Creek
Around Rancho Maria Golf Club, 1950 Highway 1
Santa Barbara County, CA

June 1, 2017

BETHEL engineering

2624 Airpark Drive, Santa Maria • California 93455 • Tel 805-934-5767 • Fax 805-934-3448

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Purpose

This plan is intended to identify the methods and features contained in the storm water quality design of the project, and provide maintenance guidelines to insure proper operation of those facilities. The purpose and scope of this plan is to address specific on-site maintenance mitigation beyond the construction activity and address them in an ongoing long-term basis.

Project Description

Willow Creek is a residential development for the abandoned farmed land. The new project will consists of 90 new houses. The only pollutants that will be on the site will be that left by vehicles that visit the site. Including the material that will be used to construct and maintain the site.

Drainage Impedance & Pollution

Only pollutants from vehicles that visit will be found on the site. In rain events, this material could be carried into the regional basin along with trash and litter, likely to be found on site. Accumulation of these occurrences mentioned above will results in significant loss of drainage capacity. Therefore the site's drainage system shall be maintained by clearing/or removing hampering material from drainage inlets and outlets. The regional basins shall be cleared of any litter hindering filtration. For inlets, outlets, and regional basin locations see "Exhibit A" on the page 3.

The basin (see "Exhibit A" for basin location) is designed to pond and infiltrates minor storm rain water. In the event of larger storm runoff, debris, silts and pollutants carried toward the basin will be allowed to settle in the basin. Rip rap located at inlets of the basins, will help retard any debris, stockpile, silts and pollutants carried by storm water. Grass and vegetation within these areas will ensure pollutants will not discharge offsite. Therefore maintenance and irrigation of these areas is critical for proper design function.

Possible drainage obstructions and pollutants include the following:

Sands	Silts	Aggregate
Rock	Gravel	Oil
Trash	Litter	Grease

Soil Stabilization

As a part of this development, erosion control measures are required during construction. Those include standard "Best Management Practices" such as hydroseeding/hydromulching, erosion control blankets, and grading techniques. These measures address not only the construction phase of the project, but long-term erosion prevention for post-construction phase of development. All areas previously mentioned, should be maintained to insure not only the aesthetics of the site, but the erosion control aspects as well. Landscaping has been designed to address soil stability and includes generous planting, hydroseeding of exposed slopes, and mulching.

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Inspection and Maintenance Program

The project owner is responsible for executing maintenance of landscaping and drainage features. This recorded Maintenance Agreement (between the City of Santa Maria and "Willow Creek" property owner) provides the enforcement mechanism to ensure compliance with these maintenance requirements.

Owner Responsibilities

1) The property owner will ensure that all Bio-retention basins, and earth-en swales are operational and maintain drainage toward it's intended designed direction. No ponded water is to remain in swales for more than 72 hours.
2) If landscape activity requires ground disturbance in the landscape areas, ground disturbance is to be kept at a minimum. Erosion and sediment control measures are to be put in place and inspected throughout the rainy season (Oct. 1 – April 30) to prevent soils/silts from entering the basins and/or offsite storm drain system. Mulch, ground cover, or plant material is to be replaced as soon as possible to avoid bare soil from being transported away from the planting areas.
3) Inspections of the basin inlets and outlets throughout the entire site shall be performed prior to the rainy season (Oct. 1 – April 30) and should identify potential problems such as silt build-up inside structures and blockages within conveyance systems.
4) Records of all maintenance activities for a minimum of 5 years prior associated with the storm water control measures are to be documented and retained and be made available to the City upon request. Any deviations from this recommended maintenance are to be documented.
5) Landscape areas are to be inspected at least twice annually for erosion, damage to vegetation, sediment and debris accumulation. Maintenance may include watering during drought periods, reseeding of bare areas, and clearing of debris and blockages.
6) Prior to and after the rainy season (Oct. 1 – April 30), and after rainfall greater than 1.2"/24 hours, inspect all basins, including basin's outlets structures. If needed, remove leaves, litter, and all debris from inlets, outlets and basin bottom. Also inspect the basin bottom and slopes for erosion and restore as necessary.
7) Remove sediment from basins if accumulation is greater than or equal to 5% of the basin design volume or if re-suspension of sediment is observed in discharges of the design storm. Sediment removal is to be performed in early spring.
8) If ponded water is observed to remain in the basin for more than 72 hours mitigation measures are to be taken to prevent mosquito breeding.

These guidelines may be reviewed and amended as needed to address specific conditions for the project. New technology developments and techniques may replace the mitigation measures proposed in this plan if they provide equal or greater efficiency of storm water conveyance. The owner should examine the effectiveness of each maintenance measure and continue to improve the methods for maximum efficiency of the system.

The failure to maintain or the physical removal of any feature described herein is a zoning violation and can result in penalties including, but not limited to fines, property liens, and other actions for enforcement of a civil judgment.

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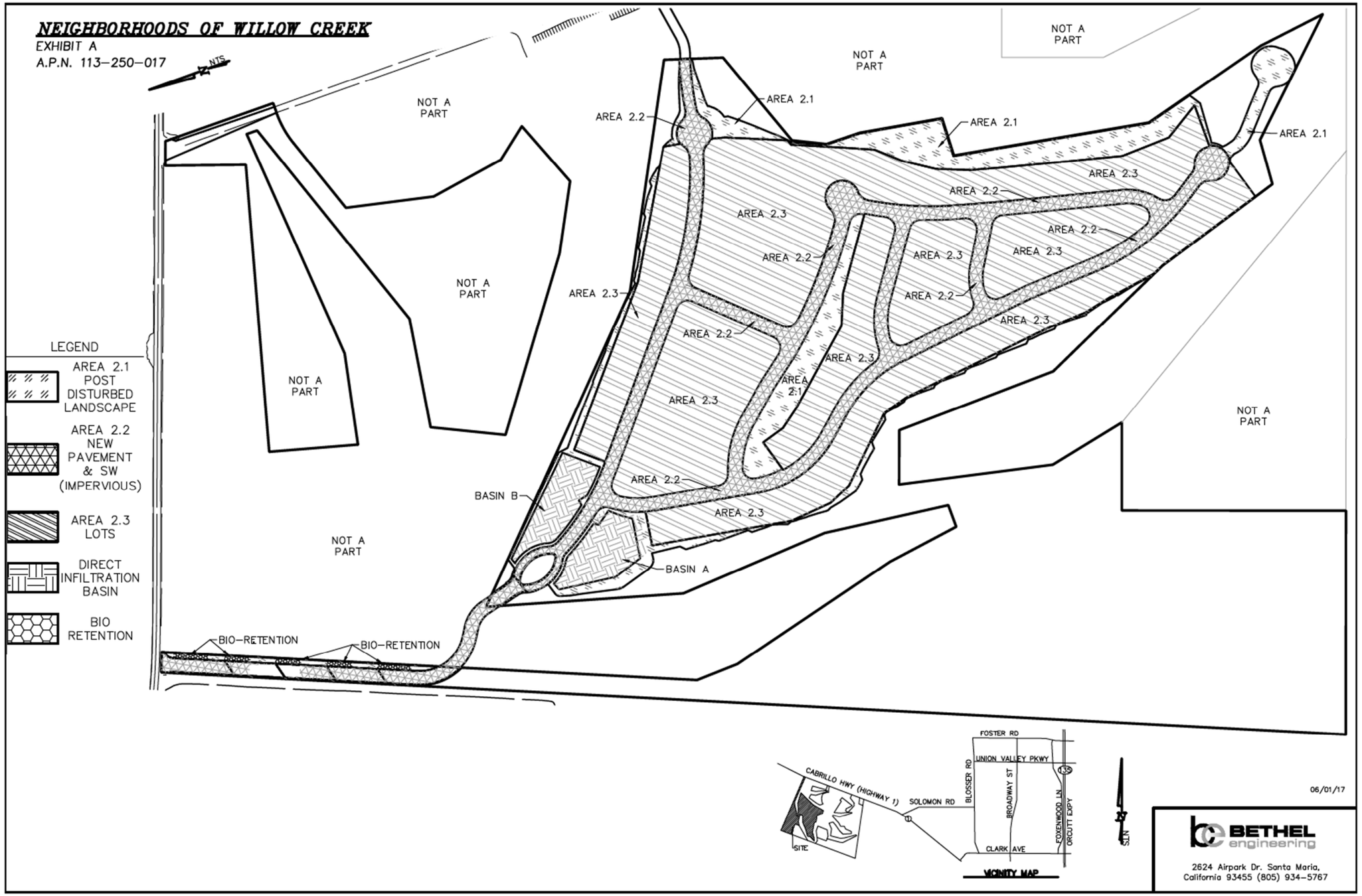

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Appendix M

Energy Calculations

Key Site 21

Hidden Canyon

Last Updated: February 22, 2019

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT						
Construction Equipment	**#**	**Hours per Day**	**Horsepower**	**Load Factor**	**Construction Phase**	**Fuel Used (gallons)**
Rubber Tired Dozers	3	8	247	0.40	Site Prep	22,059.71
Tractors/Loaders/Backhoes	4	8	97	0.37	Site Prep	11,878.16
Excavators	2	8	158	0.38	Site Prep	8,937.01
Graders	1	8	187	0.41	Grading	5,349.56
Rubber Tired Dozers	1	8	247	0.40	Grading	6,893.66
Scrapers	2	8	367	0.48	Grading	24,582.73
Tractors/Loaders/Backhoes	2	8	97	0.37	Grading	5,567.89
Cranes	1	7	231	0.29	Building Construction 1	5,701.05
Forklifts	3	8	89	0.20	Building Construction 1	5,773.94
Generator Sets	1	8	84	0.74	Building Construction 1	6,721.12
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction 1	10,186.70
Welders	1	8	46	0.45	Building Construction 1	2,238.21
Pavers	2	8	130	0.42	Paving 1	923.55
Paving Equipment	2	8	132	0.36	Paving 1	803.80
Rollers	2	8	80	0.38	Paving 1	571.66
Air Compressors	1	6	78	0.48	Architectural Coating 1	264.02
Cranes	1	7	231	0.29	Building Construction 2	5,701.05
Forklifts	3	8	89	0.20	Building Construction 2	5,773.94
Generator Sets	1	8	84	0.74	Building Construction 2	6,721.12
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction 2	10,186.70
Welders	1	8	46	0.45	Building Construction 2	2,238.21
Pavers	2	8	130	0.42	Paving 2	923.55
Paving Equipment	2	8	132	0.36	Paving 2	803.80
Rollers	2	8	80	0.38	Paving 2	571.66

Air Compressors	1	6	78	0.48	Architectural Coating 2	264.02
					Total Fuel Used	**151,636.80 (Gallons)**

Construction Phase	Days of Operation
Site Preparation Phase	176
Grading Phase	165
Building Construction 1 Phase	230
Paving 1 Phase	20
Architectural Coating 1 Phase	20
Building Construction 2 Phase	230
Paving 2 Phase	20
Architectural Coating 2 Phase	20

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Prep Phase	24.0	18	8.3	1095.60
Grading Phase	24.0	20	8.3	1141.25
Building Construction 1 Phase	24.0	360	8.3	28635.00
Paving 1 Phase	24.0	15	8.3	103.75
Architectural Coating 1 Phase	24.0	72	8.3	498.00
Building Construction 2 Phase	24.0	360	8.3	28635.00
Paving 2 Phase	24.0	15	8.3	103.75
Architectural Coating 2 Phase	24.0	72	8.3	498.00
			Total	**60710.35**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Vendor Trips	7.4	278	6.4	240.43
Hauling Trips	7.4	10546	5.0	7125.68
			Total	**7366.11**

Total Gasoline Consumption (gallons)	**60710.35**
Total Diesel Consumption (gallons)	**159002.91**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Key Site 21

Willow Creek

Last Updated: February 22, 2019

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT						
Construction Equipment	**#**	**Hours per Day**	**Horsepower**	**Load Factor**	**Construction Phase**	**Fuel Used (gallons)**
Rubber Tired Dozers	3	8	247	0.40	Site Prep	22,059.71
Tractors/Loaders/Backhoes	4	8	97	0.37	Site Prep	11,878.16
Excavators	2	8	158	0.38	Site Prep	8,937.01
Graders	1	8	187	0.41	Grading	5,349.56
Rubber Tired Dozers	1	8	247	0.40	Grading	6,893.66
Scrapers	2	8	367	0.48	Grading	24,582.73
Tractors/Loaders/Backhoes	2	8	97	0.37	Grading	5,567.89
Cranes	1	7	231	0.29	Building Construction 1	5,701.05
Forklifts	3	8	89	0.20	Building Construction 1	5,773.94
Generator Sets	1	8	84	0.74	Building Construction 1	6,721.12
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction 1	10,186.70
Welders	1	8	46	0.45	Building Construction 1	2,238.21
Pavers	2	8	130	0.42	Paving 1	923.55
Paving Equipment	2	8	132	0.36	Paving 1	803.80
Rollers	2	8	80	0.38	Paving 1	571.66
Air Compressors	1	6	78	0.48	Architectural Coating 1	264.02
Cranes	1	7	231	0.29	Building Construction 2	5,701.05
Forklifts	3	8	89	0.20	Building Construction 2	5,773.94
Generator Sets	1	8	84	0.74	Building Construction 2	6,721.12
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction 2	10,186.70
Welders	1	8	46	0.45	Building Construction 2	2,238.21
Pavers	2	8	130	0.42	Paving 2	923.55
Paving Equipment	2	8	132	0.36	Paving 2	803.80
Rollers	2	8	80	0.38	Paving 2	571.66

Air Compressors	1	6	78	0.48	Architectural Coating 2	264.02
Cranes	1	7	231	0.29	Building Construction 3	5,701.05
Forklifts	3	8	89	0.20	Building Construction 3	5,773.94
Generator Sets	1	8	84	0.74	Building Construction 3	6,721.12
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction 3	10,186.70
Welders	1	8	46	0.45	Building Construction 3	2,238.21
Pavers	2	8	130	0.42	Paving 3	923.55
Paving Equipment	2	8	132	0.36	Paving 3	803.80
Rollers	2	8	80	0.38	Paving 3	571.66
Air Compressors	1	6	78	0.48	Architectural Coating 3	264.02
					Total Fuel Used	**184,820.85 (Gallons)**

Construction Phase	Days of Operation
Site Preparation Phase	176
Grading Phase	165
Building Construction 1 Phase	230
Paving 1 Phase	20
Architectural Coating 1 Phase	20
Building Construction 2 Phase	230
Paving 2 Phase	20
Architectural Coating 2 Phase	20
Building Construction 3 Phase	230
Paving 3 Phase	20
Architectural Coating 3 Phase	20

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Prep Phase	24.0	18	8.3	1095.60
Grading Phase	24.0	20	8.3	1141.25
Building Construction 1 Phase	24.0	378	8.3	30066.75
Paving 1 Phase	24.0	15	8.3	103.75

Architectural Coating 1 Phase	24.0	76	8.3	525.67
Building Construction 2 Phase	24.0	378	8.3	30066.75
Paving 2 Phase	24.0	15	8.3	103.75
Architectural Coating 2 Phase	24.0	76	8.3	525.67
Building Construction 3 Phase	24.0	378	8.3	30066.75
Paving 3 Phase	24.0	15	8.3	103.75
Architectural Coating 3 Phase	24.0	76	8.3	525.67
			Total	**94325.35**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Vendor Trips	7.4	435	6.4	376.22
Hauling Trips	7.4	338	5.0	228.38
			Total	**604.59**

Total Gasoline Consumption (gallons)	**94325.35**
Total Diesel Consumption (gallons)	**185425.44**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Key Site 21

Last Updated: February 12, 2019

Populate one of the following tables (Leave the other blank):

Annual VMT	OR	Daily Vehicle Trips
Annual VMT: 2,533,770		Daily Vehicle Trips:
		Average Trip Distance:

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.572071
Light Duty Truck 1 (LDT1)	0.027190
Light Duty Truck 2 (LDT2)	0.206810
Medium Duty Vehicle (MDV)	0.117824
Light Heavy Duty 1 (LHD1)	0.018361
Light Heavy Duty 2 (LHD2)	0.005136
Medium Heavy Duty (MHD)	0.017629
Heavy Heavy Duty (HHD)	0.020081
Other Bus (OBUS)	0.002790
Urban Bus (UBUS)	0.002084
School Bus (SBUS)	0.002569
Motorhome (MH)	0.000873
Motorcycle (MCY)	0.006580

Fuel Economy (MPG)	
Passenger Vehicles	24.0
Light-Med Duty Trucks	17.4
Heavy Trucks/Other	7.4
Motorcycles	43.9

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*57.21%*	*Gasoline*	1449496	0.00	60395.68
Light-Medium Duty Trucks	*35.18%*	*Gasoline*	891441	0.00	51232.25
Heavy Trucks/Other	*6.95%*	*Diesel*	176155	0.00	23804.77
Motorcycle	*0.66%*	*Gasoline*	16672	0.00	379.78

Total Gasoline Consumption (gallons)	**112007.70**
Total Diesel Consumption (gallons)	**23804.77**